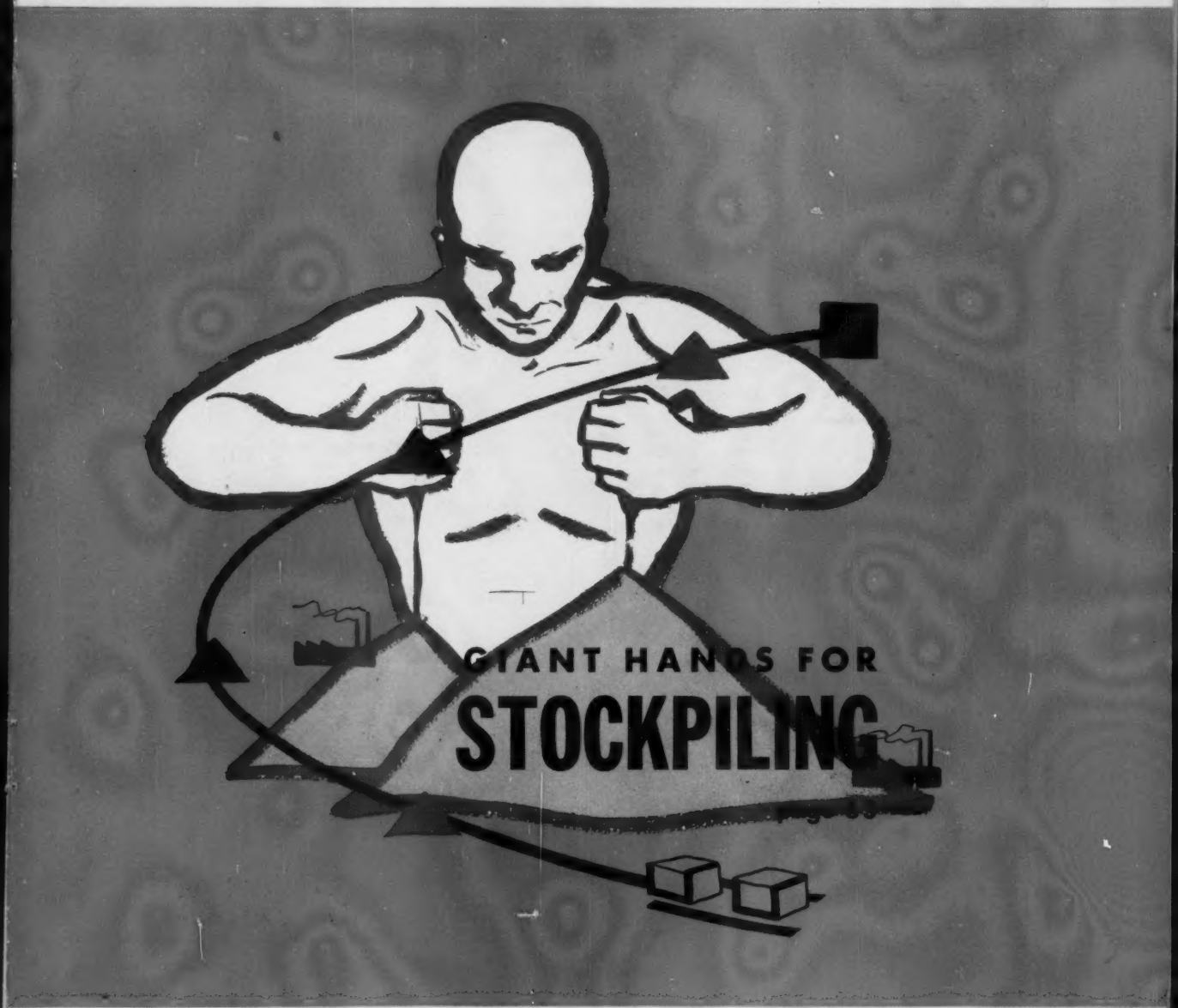
AUGUST 1957

FLOW

THE FIRST MAGAZINE OF MATERIAL HANDLING



NORDBERG

Faultless CASTER MATERIALS HANDLING FACTS

CASTERED WORK BENCHES REDUCE MANUAL HANDLING DAMAGE

A system of castered work benches has practically eliminated the manual handling of electrical control systems and components being produced at Vickers Electric Division, Vickers, Inc., St. Louis, Mo. These work benches equipped with Faultless Casters and Floor Truck Locks are used to move delicate instruments during their production and inspection, without the hazard of manual handling.

The purpose of the system was to provide a method which eliminated manual handling of the components as much as possible and thereby reduce handling damage and subsequent rejections of manufactured units. Faultless 923-5 Double Ball Bearing Swivel and 9723-5 Companion Rigid Plate Casters are used exclusively on these unique work benches.

We are proud of this Faultless performance for Vickers and yet this is but one of the hundreds of tough jobs Faultless Casters have solved for men in industry. Do YOU have a materials-handling problem? Our experienced engineers will gladly provide you with helpful data, if you simply phone or write, no obligation.

SERIES 900 DOUBLE BALL BEARING SWIVEL TRUCK CASTER

A rugged, all purpose swivel plate caster with two full rows of hardened, ground and polished grade "A" ball bearings rolling around full hardened raceways. Full drawn steel horn formed for surplus strength. Complete choice of wheels to suit floor surfaces, loads and operating conditions. Series 900GS available with Neoprene Grease-Seal retainers, where high temperatures, chemicals or water are encountered.

900 SERIES WITH CUSHION TREAD ROLLER BEARING RUBEREX WHEEL

FTL ALL STEEL FLOOR TRUCK LOCK

Easiest floor truck lock to operate. You simply step on one pedal to lock—step on other pedal to release. Positive action. The steel brake disc assembly has a "universal joint" which assures the Neoprene brake surface a firm, flat contact with the floor even when floor surface is not level.

A compression spring keeps the friction disc under a steady, predetermined locking pressure.

SERIES 9700 MEDIUM DUTY RIGID PLATE CASTER

Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. Both he and Faultless Sales Engineers are available to help you with materials handling problems. They are listed in the classified directory under the Faultless heading.

SERIES 9700 MEDIUM DUTY RIGID PLATE CASTER, COMPANION TO THE 900 SWIVEL PLATE CASTER

FAULTLESS CASTER CORPORATION, EVANSVILLE 7, INDIANA

Offices in Atlanta, Baltimore, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Grand Rapids, High Point, Indianapolis, Los Angeles, New Orleans, New York, Philadelphia, Portland, Seattle, St. Louis, Canada: Stratford, Ontario

Circle No. 66 on Reader Service Card for more information

Around the yard in 80 hours

–On tires that last for years

Weekly grind in steel plant proves grip and traction of Goodyear AWT Industrial Tires

ALL-WEATHER TREAD SOLID TIRE
–for ramps, wet surfaces and other extra-traction conditions

GROOVED TREAD SOLID TIRE
–built to take heavy punishment on big trucks

ALL-SERVICE TREAD XTRA CUSHION SOLID TIRE
–built with compact lug design for fast, easy rolling with greater smoothness and stability

SMOOTH-SOLID TIRE
–for factory, warehouse and loading platform

SIXTEEN HOURS a day, five days a week, trucks like this haul and stack rolls of plate steel. Site of this activity is the yard of a California steel plant, and steel scrap scattered all over the area offers an additional hazard for tires.

The tires used here are Goodyear Industrials. In service more than a year, these hard-working tires are still almost good as new. They've already saved the management some money–and figure to save more.

The reason: Goodyear's renowned All-Weather Tread is designed to provide sure-footed stability on difficult surfaces. In addition, these tires are made with *specially developed Goodyear "UN" compound* to give extra resistance to cutting and chipping. And a unique bonding-to-steel band process helps to eliminate base separation.

UN compound, plus Goodyear's famous All-Weather Tread, have proved the ideal combination for long industrial tire life.

If you have a problem involving industrial tires, why not talk it over with your Goodyear dealer? He can help you by fitting the right tire to the truck –and to the job. Goodyear, Industrial Tire Sales, Akron 16, Ohio.

Use the Right Tire for the Job—Buy and Specify

GOODYEAR

INDUSTRIAL TIRES

All-Service, All-Weather, Xtra Cushion–T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

GOODYEAR TIRES

Look for this sign; there's a Goodyear dealer near you.

Circle No. 77 on Reader Service Card for more information

We cut our time unloading boxcars from 16 to 4 hours!

—John Tilden, Pres., Cleveland Fire Brick Company

"Refractory brick and bagged materials are shipped to us in boxcars or highway trucks. It used to take us two full days to unload a carload of brick by manual methods—using two men with hand clamps—seven bricks per clamp. Today we can do the job in about 4 hours with a Baker YARDLOADER fork truck. And, by ordering all our materials palletized for fork truck handling, we make similar savings all along the line—in yard storage, in our warehouses, and in loading our own trucks for local delivery. ***By high stacking, we have more than tripled our warehouse capacity."***

The Baker "FGF" YARDLOADER is a rugged, compact, pneumatic-tired gas fork truck designed for heavy duty. Model illustrated has 4000 lb. capacity, and is equipped with a truck-loading mast providing 110 inch lift from 71 inch overall height. It is extremely maneuverable—with only 48-inch wheelbase and practically no overhang, it has a turning radius of only 79 inches!

OLD METHOD

Write for complete information

Baker
industrial trucks

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO
A Subsidiary of Otis Elevator Company

Otis

TGB

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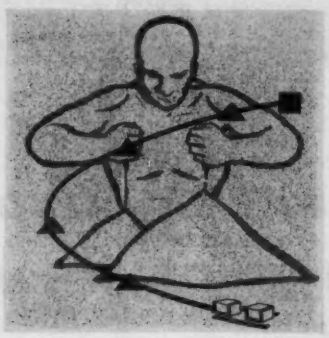
AUGUST 1957
VOL. 12, NO. 11

FLOW

DEPARTMENTS



THE COVER

The three basic methods of stockpiling—with conveyors, mobile units and overhead bridge cranes—are discussed and evaluated.

FEATURES

PACKAGING AND SHIPPING SECTION

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WELDING ILLUSTRATED
OCCUPATIONAL HAZARDS
COMMERCIAL REFRIGERATION AND AIR CONDITIONING
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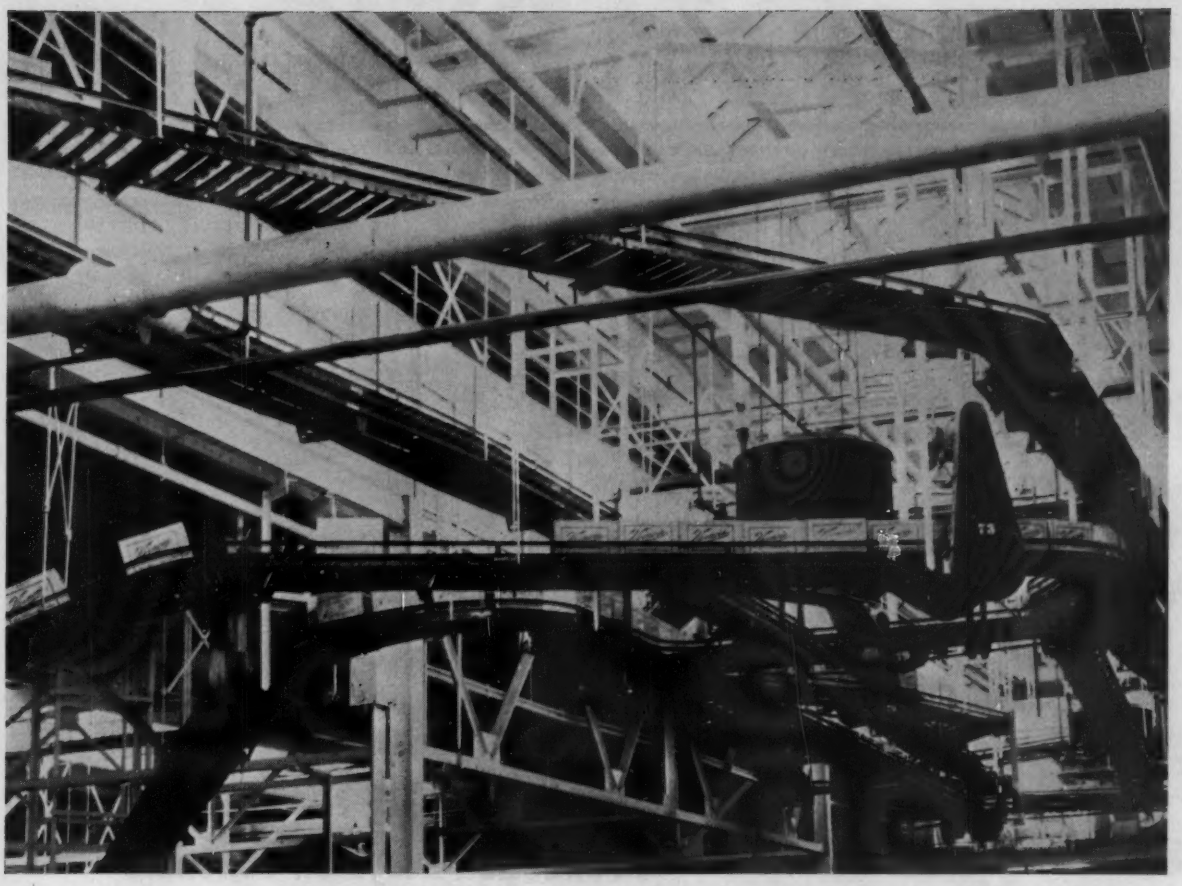

An Alvey conveyor system designed to your specific needs puts more of your space to work . . . productively.

expand inside your present plant with Alvey Engineered Conveyors

There are lots of ways — and places to run space-saving conveyors . . . and there probably is more potentially productive space in your plant than you realize. Alvey engineers are experts at finding it. And they'll put it to work for you . . . through an integrated conveyor system that can expand your operations within present plant space.

Want to talk it over? We'll be happy to discuss details with you at your convenience.

ALVEY 295

ENGINEERED CONVEYOR SYSTEMS

ALVEY CONVEYOR MANUFACTURING CO. 9299 Olive Street Rd., St. Louis 24, Mo. • *Branch Offices in Principal Cities*

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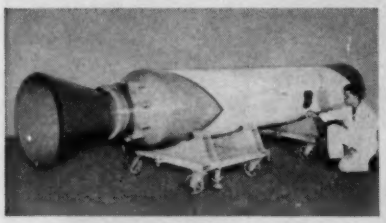
MATERIALS-HANDLING NEWS

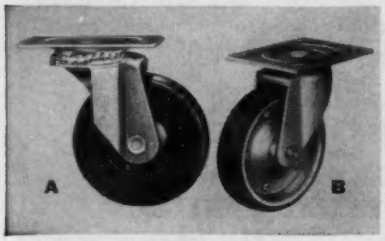
NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS



Phillips "Pusher" Rocket rides Grooved Wheel casters

This giant booster rocket was recently designed, developed and test fired by the Rocket Fuels Division of Phillips Petroleum Co. It yields extremely high thrust for short duration.

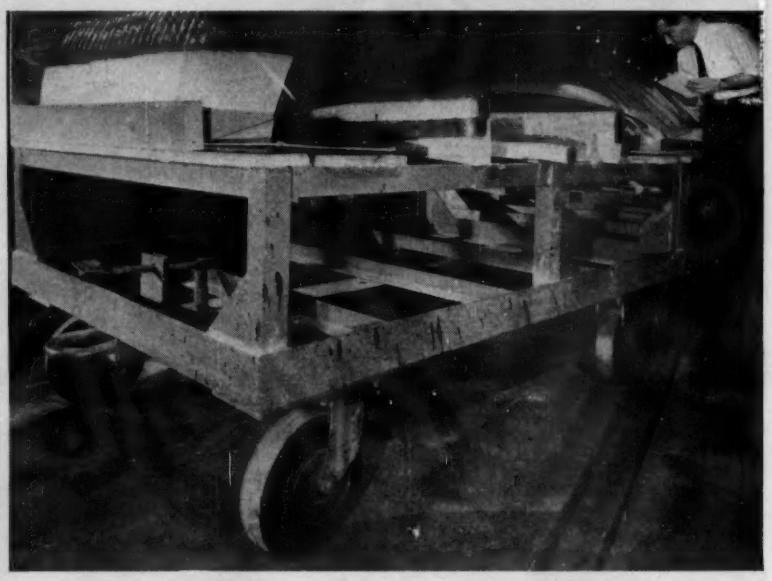
Handling equipment of this type calls for the close control provided by the Bassick grooved wheel casters and position locks you can see on the rocket dolly above. Bassick grooved wheel casters can be used on flat surfaces as well as on inverted angle iron tracks. Perhaps this operational flexibility could solve some handling problem in your plant.



Top quality casters for light equipment

A Series "68" casters have Bassick's Diamond Arrow construction with a single raceway of balls operating on two levels and doing the work of double ball bearings. Designed for light duty trucks, they come with 2½", 3", 3½", 4", 5" and 8" wheels; load capacities from 80 to 250 lbs. Side brakes optional on 4" and 5" sizes.

B Series "H68" casters are suited for plant, warehouse or store applications. They handle loads from 140 to 350 lbs. apiece on 3½", 5", and 6" Baco, Atlasite, or Side Plate wheels. Swivel ball bearings operate in two effective sets of case hardened raceways. Slotted bolt holes give adaptability. Plate, angle iron stem, or pipe socket mounting.



Floating Hubs carry Ford windshields Production stays on schedule

As Ford windshields go through cutting, bending and laminating operations at the Dearborn glass plant, Bassick "Floating Hub" casters get a real workout.

In the cutting stages these shock absorbing casters carry 3000 to 4000 pound loads. After the windshields are bent and formed, the extremely sensitive units are handled on smaller trucks also equipped with Bassick Floating Hub casters.

The shock absorbing feature of Floating Hubs permits many companies to move fragile loads at higher speeds than would otherwise be practical. In addition to their shock absorbing features, you'll also like the lateral stability, maneuverability and low maintenance of Bassick Floating Hub casters. Might be just the caster for that tough handling job in your plant.

World rides on casters

Look closely and you'll see the Bassick casters this globe rides on. And, to us in materials-handling, it does seem at times that nearly everything in the world rides on casters. Whatever material you're handling—whatever conditions you're working in—there's a Bassick caster designed to help you.

ASK YOUR DISTRIBUTOR

That's where your local Bassick distributor can help. He carries a wide variety of Bassick casters in stock. And he can give you detailed information (load capacity, type of wheel, sizes and accessories) on every caster in Bassick's line. Call on him today. Or write us for his name.

THE BASSICK COMPANY, Bridgeport 5, Conn. *In Canada:* Belleville, Ont. 7.41

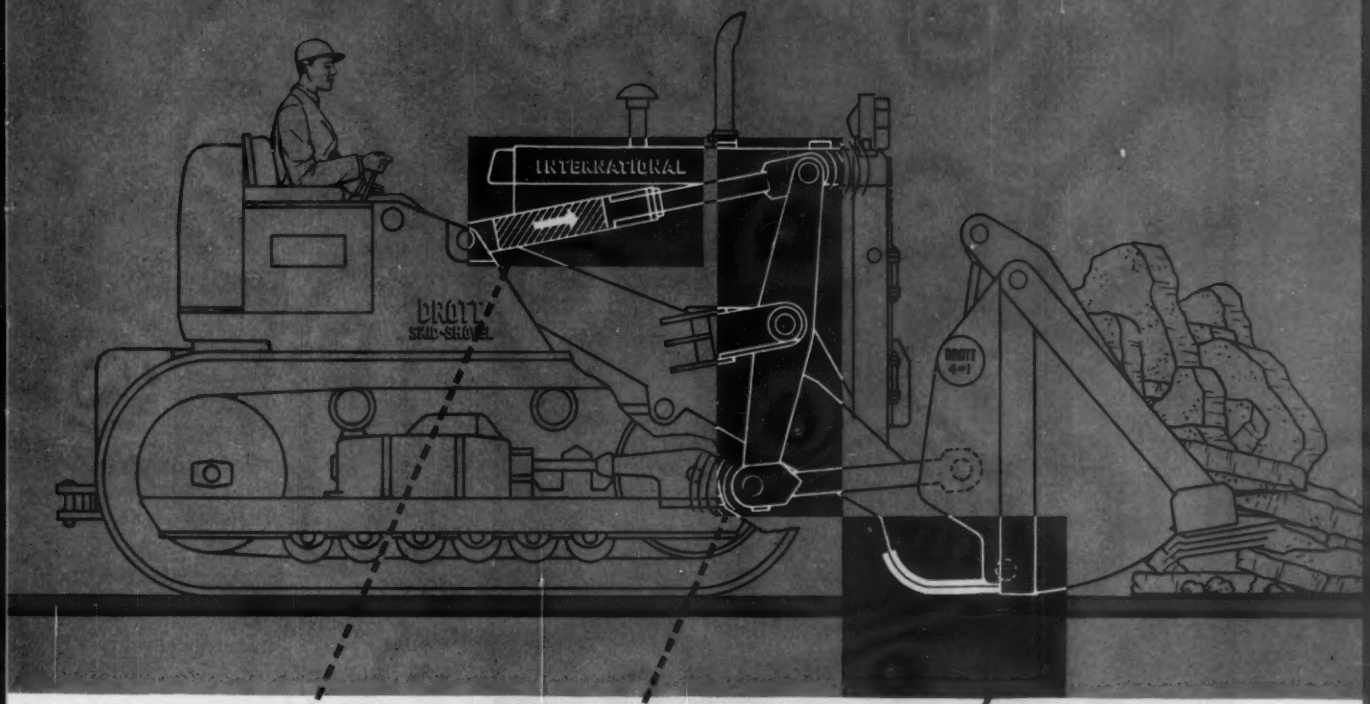
Sweet's

Bassick — A DIVISION OF STEWART SW

Circle No. 23 on Reader Service Card for more information

LET'S TAKE A CLOSE LOOK AT TRUE

pry-over-shoe break-out-action



Full hydraulic power transfer! Famous International Drott *triple-power* hydraulic force results from ingeniously applying oil pressure upon the piston's *full face*—instead of using the customary, and limited, rod-end area for the "power-push" surface! Only International Drott gives you this tremendous hydraulic power to produce concrete-smashing, tree-grubbing, boulder-bucking pry-action break-out!

Far greater leverage. See how International Drott scientifically-correct *lever length* transfers *full* triple-power hydraulic force to the fulcrum. No costly power-dissipating "step-downs" here to lose one-fourth to one-half of your hydraulic power, as ordinary design does! Instead, International Drott full power-applying leverage gives you tough-job-handling digging force and capacity ordinary loaders can't even begin to equal!

Ground-based fixed fulcrum! Here's how exclusive International Drott design provides the famous frame-mounted skid-shoes—to act as the absolutely necessary *fixed fulcrum.* Without this, true pry-action break-out is impossible. The big exclusive International Drott skid-shoes provide the steady, ground-based platform for true ground-level bucket-heaping roll-back of 41°!

Only *original* and *exclusive* International Drott design transfers *full* hydraulic power to give you tremendous *extra* excavating force! Here's how exclusive International Drott "separates the men from the boys" in heavy-duty loader design—and gives you front-end loader performance nowhere else available.

Prove to yourself you command a vast new job-range and capacity—with this super-powerful excavating, bucket-heaping pry-action. See what happens when you team this performance with the *versatility unlimited* of an exclusive Four-In-One. Compare how *exclusive* shock-swallowing Hydro-Spring "gentles" trouble-causing impact by 67%! Ask your International Drott distributor for a demonstration!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

Circle No. 84 on Reader Service Card for more information

LETTERS TO THE EDITORS

Finds FLOW a Necessity

To FLOW:

I hold the position of Assistant Packaging Engineer and have seen copies of FLOW on the desks of my associates. So far I have been able to borrow a copy for overnight study but I would like very much to be placed on your mailing list so I may have one of my own. I think FLOW is a necessity for the professional Packaging Engineer.

Gene A. Laster
Texas Instruments, Inc.
Dallas, Texas

After such flattery, how can we say no?

Postal Praises . . . and Peeves

To FLOW:

Hurrah for you!

Now let's get to work on this Post Office problem. We have in this country some of the most advanced thinkers in the business and I believe that with a central collecting agency such as FLOW Magazine, we can lick this crumbling, mismanaged organization and make something of it.

Thomas F. Britton, Jr.
Anchor Hocking Glass Corp.
Lancaster, Ohio

To FLOW:

We thoroughly agree with the contents of your telegram of April 16 addressed to the Postmaster General.

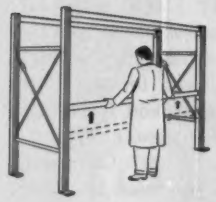
Mack Rapp
Detecto Scales, Inc.
Brooklyn, N. Y.

To FLOW:

In defense of the Postal service, would you be interested in seeing

Today's Modern Rack Built for Tomorrow!

Easy and Quick to adjust....just raise or lower like a window

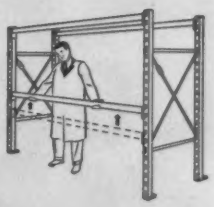


One man (no fork truck required) can adjust rack to any level. "U" shaped brackets SLIDE up and down formed posts.

American

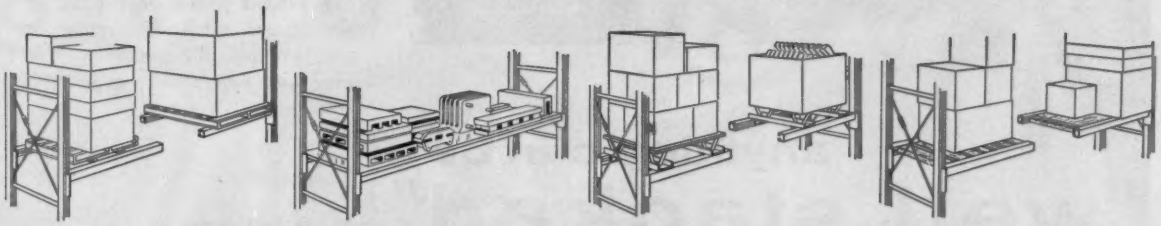
Slide-n-Lock adjustable

STORAGE RACKS

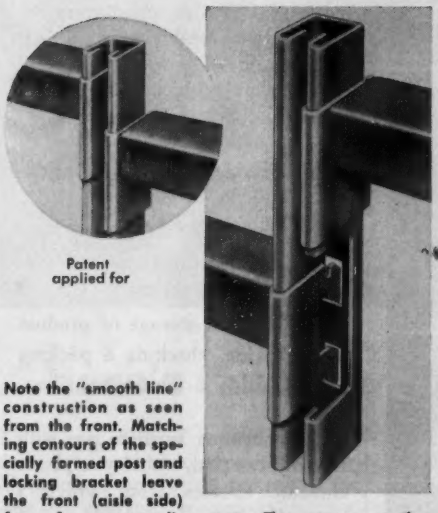


When desired level is reached, merely slide the dual wedges into slots in back of posts. They lock themselves in place.

the last word in Storage Rack Design and Value!



If you rack on pallets..If you store dies..If you rack on skids..If you store bulk.. the American Slide-n-Lock Adjustable Rack is the Rack for you!



Patent applied for

Note the "smooth line" construction as seen from the front. Matching contours of the specially formed post and locking bracket leave the front (aisle side) free of any protruding parts. The cutaway section shows how the dual wedges engage toward the rear of the rack.

NO BOLTS | NO WELDING | ALL PARTS CARRIED IN STOCK | IMMEDIATE DELIVERY

over 800 different sizes and capacities from 5 basic parts

Before you buy a storage rack of any type, be sure to investigate the many advantages of the completely new design American Slide-n-Lock Adjustable Rack. A revelation in ease of erection and operation, this rack is far ahead in value and efficiency..there's no rack equal to it on the market. Our 8-page catalog gives detailed information about this ingenious all-purpose storage rack.

send today for catalog

AMERICAN METAL PRODUCTS COMPANY

STORAGE RACK DIVISION

5959 LINSDALE AVENUE amp® DETROIT 4, MICHIGAN

Circle No. 160 on Reader Service Card for more information

what they are already doing to cut costs through modern handling methods? I'm convinced you'd feel somewhat differently after having talked with the chief industrial engineer for the Post Office Department, and inspecting the modern facilities now operating in New York, Cleveland, Baltimore and projected for other major cities.

Joseph E. Urban
Thomas A. Edison Industries
Cleveland, Ohio

Reader response to the Post Office project proves that a lot of people are vitally interested in this problem. We are anxious to hear more opinions—both pro and con.

To FLOW:

What Is Proper Personnel Ratio

For some time we have been discussing industry-wide ratio of personnel in manufacturing departments as to shipping department. We are manufacturers of toilet articles and cosmetics. We consider the following functions under manufacturing:

1. Receiving & storage warehouse
2. Manufacturing—raw materials
3. Filling & packaging

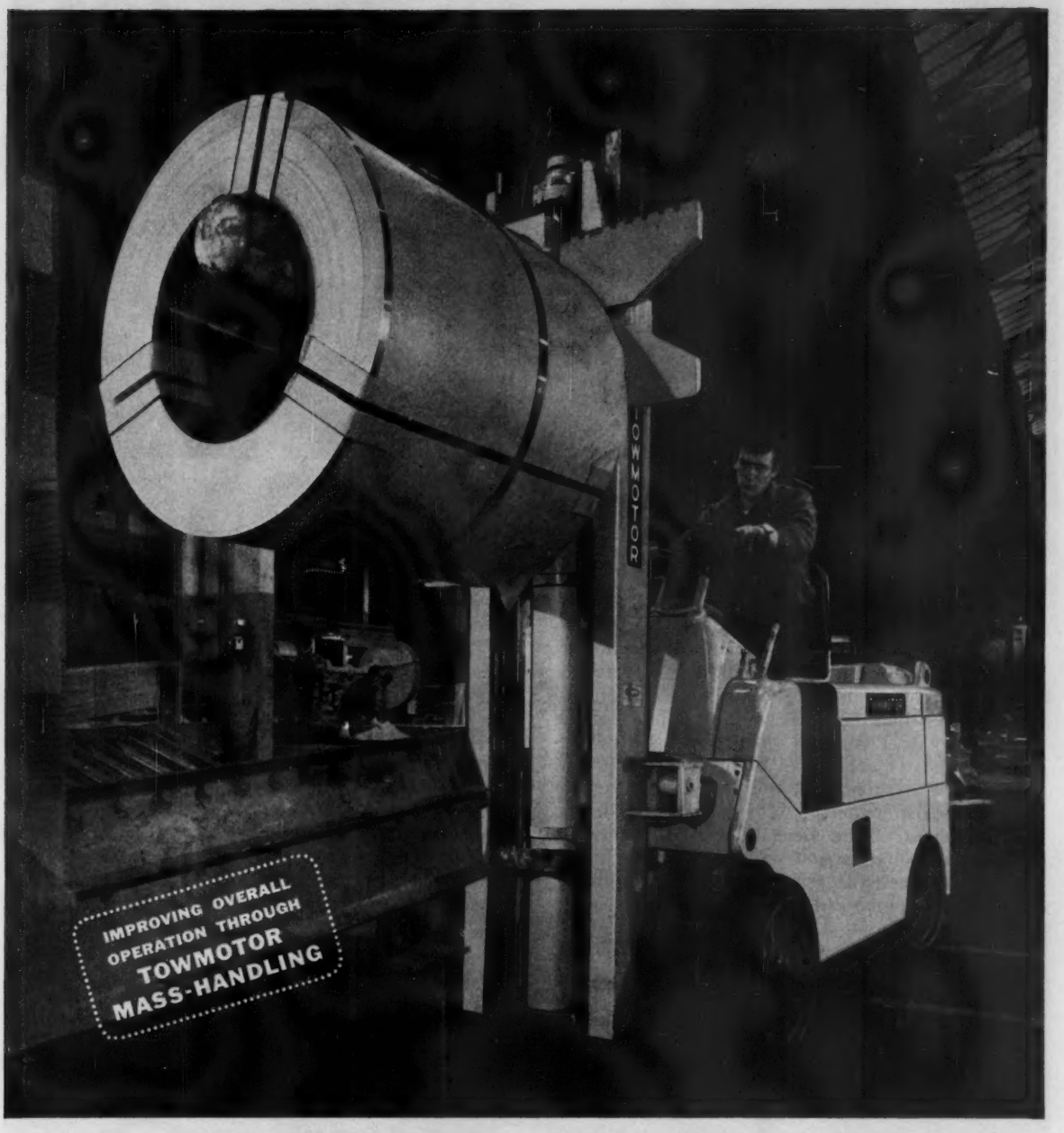
The following functions are considered under shipping:

1. Receipt & storage of product
2. Picking, checking & packing
3. Loading & sorting vehicles

If you cannot furnish me with this information, would you please indicate sources from which I may obtain it.

Nicholas Yaremko
92 Van Buran Street
Staten Island, N. Y.

We too would be interested in such data, but we know of no source for it. Any ideas from readers will be welcomed.



...here's "manpower" that hands you a bonus!

Think how many of your plant's handling jobs can be accomplished with much less effort—swiftly and profitably—by one operator "teamed up" with a powerful Towmotor fork lift truck!

You get an entirely new concept of modern mass-handling. You get a "bonus" in extra profits because you multiply manpower with the payroll you have. And you get a bonus in plant-wide morale when work flows on-schedule through every department . . . effortlessly . . . with a bigger day's work done.

Called the "ideal" fork lift truck by management and operators alike, the latest Towmotor models offer exclusive features as advanced as these, at no extra cost:

- New-concept functional engineering
- Simplified dual-entry compartment
- Full-traction weight distribution
- Adjustable off-center visibility
- New *motion-studied* centralized control
- Towmotor improved precision steering

Power steering, 'TowmoTorque' Drive at extra cost

These and 60 other points of superiority are described in Towmotor booklet SP-23 for comparison. Get a copy from Towmotor Corporation, Cleveland 10, Ohio.

Leaders for 38 years in building Fork Lift Trucks and Tractors

TOWMOTOR — THE ONE-MAN GANG — GERLINGER

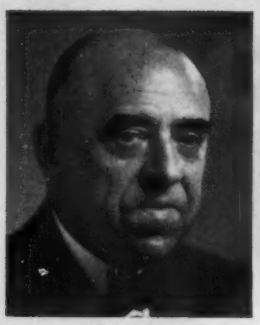
Gerlinger Carrier Co., Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland, Ohio

Circle No. 145 on Reader Service Card for more information

MEN in the NEWS

Rittenhouse

Carlile



Dunning

Mathers

At **C & D Batteries, Inc. . . . John F. Rittenhouse,** executive vice president since 1953, has been named new president. He fills the post left vacant by the recent death of **Leon A. Doughty,** former president and one of the two original founders of the company. Announcement was made by **Frank S. Carlile,** following a meeting of the board of directors to elect new company officers. Carlile, the other original founder of the company in 1906, was elected to the newly-created post of chairman of the board. He had been vice president and treasurer. The board of directors also made the following changes in the management of the firm: **Stewart E. Doughty,** a company director and son of the former president, was elected treasurer. **Thomas L. Caldwell,** secretary, was named comptroller in addition to his present duties. **Louis M. Eble, Jr.,** a director, was named a vice president and **H. Russell Stewart,** presently assistant to the vice president in charge of engineering and marketing, was made a director. One other management post is unaffected, with **Henry E. Jensen** remaining as vice president in charge of engineering and marketing. A new executive vice president to replace Rittenhouse has not been named. Rittenhouse joined C & D's engineering department in 1935, became chief engineer in 1943, vice president in charge of engineering in 1950 and executive vice president in 1953.

Doughty

Eble

Stewart

At **Yale & Towne Mfg. Co. . . . Fred Dunning,** executive vice president and secretary, has retired after 35 years' service. **William H. Mathers,** a partner in the law firm of Milbank, Tweed, Hope & Hadley, has been elected a vice president and secretary, it was announced by **Gilbert W. Chapman,** president. Dunning will retire as an officer of the company, but will continue to serve on the board of directors. Mathers, who has been serving on the board since 1952, will assume his executive duties on September 1.

At **The B. F. Goodrich Co. . . .** the retirement of **William S. Richardson,** president, has been announced by **John L. Collyer,** chairman and chief executive officer. **J. W. Keener,** executive vice president, was named president, director, and member of the Executive Committee. Richardson will continue as a director of the company. His retirement comes after 31 years with the company. **Reuben B. Robertson, Jr.,** president of Chapman Paper & Fibre Co., also has been elected a member of the board of directors.

At **Allied Steel and Conveyors** . . . announcement has been made of the election of **Warren E. McKittrick,** general manager of Allied Steel and Conveyors Division, as vice president of the **Sparton Corporation,** the parent firm. Sparton previously was Sparks-Withington Co.

At **The Standard Pressed Steel Co. . . . Chester C. Lonsdale,** assistant to the superintendent, has been named superintendent of the Hallowell Division. Lonsdale, who will be in charge of manufacturing, packaging and shipping in the division, joined the company 16 years ago.

(Continued on page 14)

with STEPHENS-ADAMSON THROWER UNITS

- Fill box cars and storage bins fuller, faster
- Load and trim—one operation
- Safely and easily operated by one man
- Will efficiently handle up to 350 TPH of grain, fertilizer, crushed ore, sand, gravel, chemicals, and other bulk materials up to 6" lump size
- Improves working conditions, minimizes dust
- "Hi-Type" loads over three grain doors
- Top-quality that provides for dependable, trouble-free service
- Save time, work and money
- Stocked for immediate delivery

S-A BOX CAR LOADER
Request Catalog No. 948

S-A "Hi-Type" SWIVELOADER
Request Catalog No. 854

S-A STANDARD INDUSTRIAL PRODUCTS

STEPHENS-ADAMSON offers a complete line of "in stock" materials handling products that are ready for immediate shipment from your local distributor. For full information, request Catalog No. 60.

STANDARD PRODUCTS DIVISION
STEPHENS-ADAMSON MFG. CO.
36 Ridgeway Ave. Aurora, Illinois

MAIL THIS HANDY COUPON TODAY!

Gentlemen:
Please send me
☐ Catalog No. 854 ☐ Catalog No. 948
☐ Catalog No. 60
☐ Have Representative Call

Name_____
Firm_____
Address_____
City_____ State_____

Circle No. 140 on Reader Service Card for more information

MEN IN THE NEWS

Continued

At **Towomotor Corp. . . . Alfred H. Roth,** sales promotion and advertising manager, received the highest honor award in the National Industrial Advertisers Association's

1957 Best Seller Award Competition. The award was given for the outstanding industrial advertising program of the year and was presented at the Association's 35th annual conference in New York. The trophy was presented by **Ralston B. Reid,** chairman of the board of NIAA. Shown left to right are **Paul W. Kohler,** vice president of Swink Advertising, agency for Towmotor, **Reid, Roth** and **Rene Shapshak,** sculptor who created the trophy.

At **Chain Belt Company . . .** retirement of three executives and new appointments to management positions are announced. Retired: **Alfred R. Abelt,** vice president, sales; **Edmund P. Meyer,** works manager, Milwaukee plants; **Louis J. Michiel,** sales manager, foundries. New appointments: **Luther H. Bosnian,** senior vice president; **William J. Sparling,** vice president, manufacturing and facilities; **Edward M. Rhodes,** general manager, Industrial Equipment Section; **Harold Patzer,** sales manager, foundries.

At the **American Management Association . . .** the appointment of **E. King Graves** as manager of the packaging division was disclosed by **Lawrence A. Appley,** president. Graves will direct the di-

RAISE AND LOWER HEAVY LOADS *AUTOMATICALLY* TO SPEED AND IMPROVE PRODUCTION

LOAD AND UNLOAD MACHINES QUICKLY

Machines that are fed material in bulk quantities . . . or fabricate large and heavy end products . . . utilize hydraulic platform lifts to speed charging and discharging. Globe OiLIFTS, used in these installations, reduce manual effort and portable machine handling, lower costs and speed the operation safely.

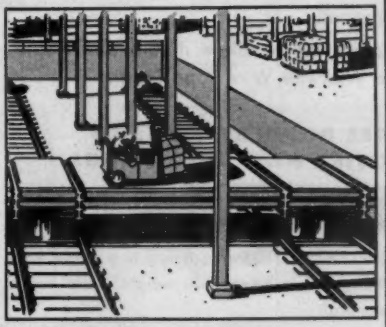
ELIMINATE HAZARDOUS RAMPS

Space consuming, dangerous and laboriously traveled ramps between two floor levels are eliminated by Globe OiLIFTS. Materials move on the level, from one area to another, risk of damage or accident is lessened, space and time are saved.

BRIDGE LIFTS SPEED CROSS-TRAVEL

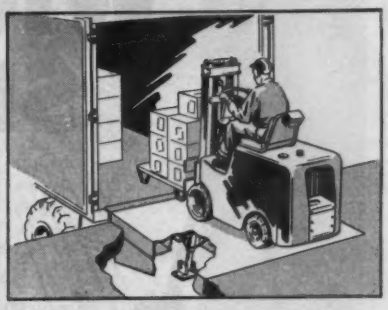
When railroad sidings cut a recessed path within a factory building or between two buildings, Globe Bridge Lifts can pay for themselves in time saved. They provide a short, direct path across the recess and eliminate the long haul around.

Time required to go around a siding is frequently from four to ten times as long as the crossing time. Taking into account men and equipment, it requires but little traffic to show a saving in favor of the bridge lift.



Globe Bridge Lifts meet most any requirement . . . to span 5 or 50 feet . . . for one- or two-lane passage, across single or multiple tracks. Assembled from standard power cylinders and structural components . . thus these lifts are low in first cost, easy to install, and economical to use.

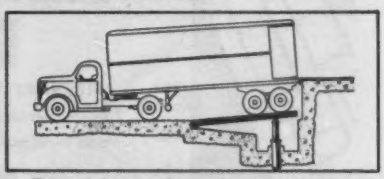
TRANS-O-MATIC RAMP SMOOTHS TRAFFIC



The gaps in distance or level between truck and loading dock are readily bridged by Trans-O-Matic Ramps. While the ramp is lifted out of the way, trucks back into position. The ramp is lowered to the truck body and "floats" to compensate for differences in level as loading or unloading proceeds.

Automatic Safety Lock prevents sudden drop if truck pulls away while ramp is being used.

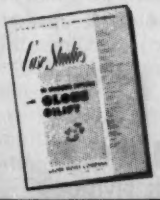
TRUCK LEVELER EVENS OUT DOCK AND BODY HEIGHTS



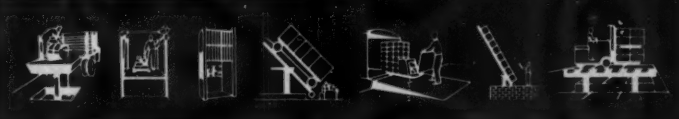
By raising or lowering the rear of a truck or trailer, the bed is brought even with the dock.

Push button or lever control operates two hydraulic rams in unison. Size: 10 x 12 ft. Capacity: 40,000 lbs.

GLOBE®
OiLIFT
PLANTS: DES MOINES-PHILADELPHIA-LONG BEACH, CAL.



GET YOUR FREE COPY TODAY!



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Please send me a copy of OiLIFTS Case Studies.
I am particularly interested in:

☐ Machine Feeding Lifts ☐ Trans-O-Matic Lifts
☐ Ramp Eliminators ☐ Truck Levelers ☐ Bridge Lifts

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MEN IN THE NEWS

Continued

vision's program of educational meetings for packaging executives, a program that includes the A.M.A.'s annual National Packaging Exposition and Conference.

At **Goodyear Tire & Rubber Co. . . . A. B. "Dutch" Walter,** a pioneer of belt conveyorization in underground mines, is on leave of absence that will extend into retirement in September. He has been with the company for 25 years.

At **The Frank G. Hough Co.** . . . three promotions in the financial section have been announced by **E. L. Hanson,** vice president and Director of Finance. **Robert L. Smith** has been elected secretary and treasurer. He formerly was assistant secretary and assistant treasurer. **Frank M. Docauer,** former staff assistant, has been elected assistant secretary. **Fenton O. Richards,** who was assistant manager of the Cost Department, has been elected Controller.

At **Robertshaw-Fulton Controls Co.** . . . the board of directors announced the election of **Thomas T. Arden** as president and **John A. Robertshaw,** former president, as chairman of the board. Robertshaw immediately announced the formation of a three-man executive committee headed by **Richard S. Reynolds, Jr.,** former chairman of the board. The committee includes Robertshaw and Arden.

At **The Woodfield Hoist & Associated Industries Ltd.,** of Rochester, Kent . . . **Robert Corbett** has been appointed to an executive position on the board. He will resign his post as managing director of R. H. Corbett & Co., Ltd., of Burgess Hill, Sussex, but will re-

Integral Flow Control Now Available In Larger Volume Vickers Vane Pumps

For power steering of vehicles with very heavy front axle loading

Assures Optimum Steering ... Simplifies and Reduces Cost of Installation

Flow control in hydraulic power steering circuits is necessary because power steering pumps vary in volume delivery according to engine speed. To assure adequate steering power while maneuvering in tight places, the pump must be chosen to provide ample volume at engine idle speed. The much greater flow at high speed, if not controlled, results in unsatisfactory and sometimes unstable steering performance. Further disadvantage is undue heating of the hydraulic fluid.

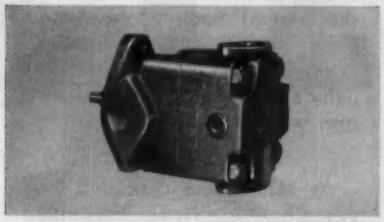

FIG. 1—Vickers Series V200 Vane Pump with integral flow control and relief valve. Available in 3 sizes with nominal rated capacities of 5, 8 and 11 gpm.* Controlled flow rates of all sizes are 2, 4, 6 and 7 gpm at relief valve setting of 750 or 1000 psi.

***Rating at 1200 rpm.**

An integral flow control valve for limiting flow to the steering device has always been a feature of the small Vickers Vane Type Pumps used in passenger car steering. Excess fluid resulting from higher engine speeds is returned to the reservoir with minimum pressure loss and very little heating. Previously, the larger pumps used for steering heavy vehicles did not have an integral flow control valve. It was installed as a separate unit.

Now Vickers offers larger pumps—the V200 Series—with integral flow control (See Fig. 1), which simplifies and substantially reduces the cost of installation. Smaller hydraulic lines to the steering booster are made possible by limiting flow in this part of the circuit.

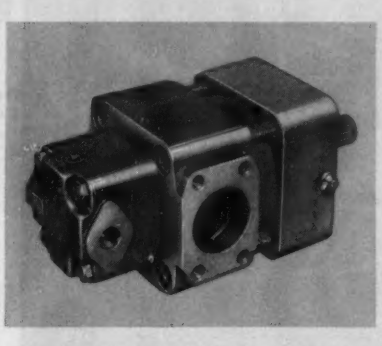

FIG. 2—Vickers Double Pump for operating two independent hydraulic circuits from one power source. Series V2200, V3200 and V4200 are available with the smaller pump (Series V200) having integral flow control for power steering.

For applications requiring two separate hydraulic circuits, the Vickers line now includes three new series of double pumps (See Fig. 2). Integral flow control is furnished in the small-volume section used for power steering. The large-volume section, in conjunction with Vickers multiple unit valves is used for operating the vehicle's tools.

Both the single and double pumps with integral flow control have all the features and characteristics responsible for the outstanding popularity of Vickers Vane Type Pumps. Higher efficiency means more work from less power. Hydraulic balance eliminates pressure induced bearing loads, provides longer life and reduced maintenance. Automatic wear compensation maintains "new-pump" efficiency throughout a very long life. Starting in cold weather is easier.

More Vickers designed pumps than all other makes combined are used for hydraulic power steering. Ask for new installation drawings M192680, M192856, M192857, M192858 and #1617-S.

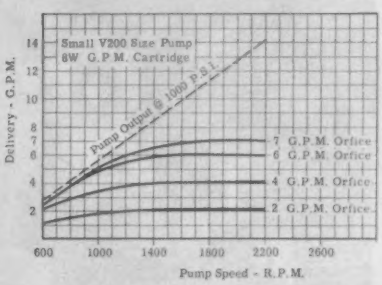

FIG. 3—Typical performance curves of Vickers V200 Pump with Integral Flow Control and 8 gpm cartridge. Delivery rises quickly with speed and then holds at controlled flow rate setting.

7777

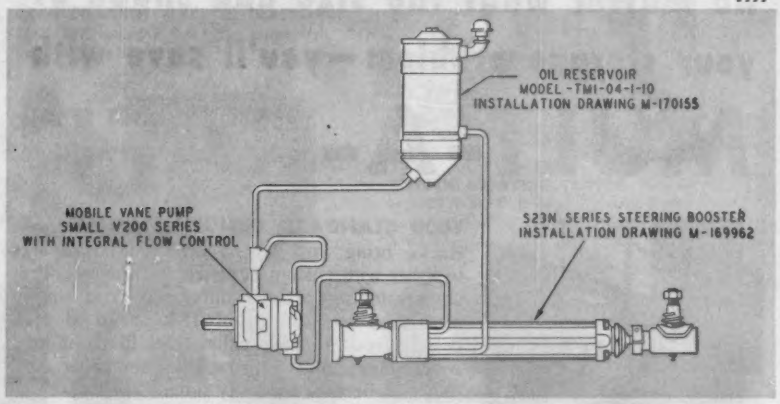

FIG. 4—Preferred circuit when using Vickers Series V200 Vane Pump with integral flow control and Vickers S23N Hydraulic Power Steering Booster. This model is without relief valve because the pump contains such a valve.

VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

Mobile Hydraulics Division

ADMINISTRATIVE and ENGINEERING CENTER

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IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto and Montreal

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MEN IN THE NEWS

Continued

main on the board in a non-executive capacity. **H. D. W. Stevens** has been appointed general manager of Corbett in his place.

K. E. Joy

At **Auto-Soler Company . . . Kenneth E. Joy** has been elected to the board of directors and to the newly created post of executive vice president of marketing, according to **William H. Wilkerson,** founder and president of the Atlanta concern. Joy was vice president in charge of sales of Bostitch, Inc. until he joined Auto-Soler on March 18. His election was at the annual meeting of Auto-Soler Stockholders on April 5, at which time all of the Company's 1956 officers and directors were re-elected.

At **Mid-States Gummed Paper Co. . . . Arno L. Zinke,** president, announces the appointment of **Waldo G. Bretson** to the position of vice president and general manager. Bretson succeeds **Frank W. Humphner,** former general manager, who tendered his resignation on the advise of his physician. He is expected to return to the company as soon as his health permits.

At **Borg-Warner Corp. . . . Keith N. Stought** has been promoted to plant manager of the Industrial Crane & Hoist, Ingersoll Products Division. He formerly was assistant to the works manager and chief industrial engineer.

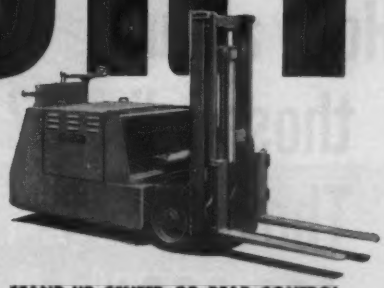
At **Hyster Company . . . W. R. "Mo" Washburn,** until recently a Caterpillar Tractor Company distributor for 27

(Continued on page 58)

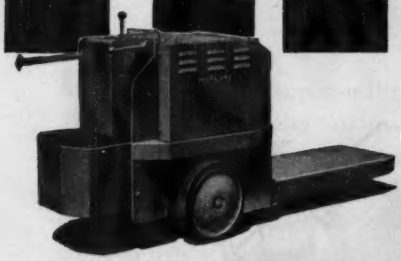
MERCURY ELECTRIC TRUCKS

SIT-DOWN CENTER CONTROL FORK TRUCKS. Models in 2000 to 8000 lb capacity. Regular or heavy duty power supply. Model 330.

FRONT CONTROL ELECTRIC TRACTOR. 1000 to 5500 DBP capacity. Twin 3- or 4-wheel steer. Model 550.

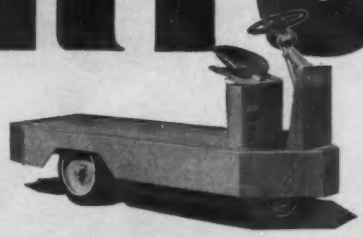


STAND-UP CENTER OR REAR CONTROL FORK TRUCKS. Models in 4000 to 8000 lb capacity. Regular or heavy duty power supply. Model 430-E.



PLATFORM LIFT TRUCKS. Models with low, high or telescopic lifts, in 3000 to 10,000 lb. capacity. Model 1017.

REAR CONTROL ELECTRIC TRACTOR. 3000 DBP capacity. Full spring suspension. Easy coupling. Model 751



BURDEN CARRYING TRUCKS. Models in 2000 to 6000 lb. capacity; drop frame deck construction also available. Model A-823.

PETTIBONE MERCURY
FORK TRUCKS TRACTORS TRAILERS

A SUBSIDIARY OF PETTIBONE-MULLIKEN CORPORATION

STANDARDIZE AND SAVE WITH MERCURY

. . . the one complete source for all your handling needs. Mercury's famous engineering assures superior truck performance, less down time and greater longevity—saving *you* man-hours and money while winning the acclaim of your drivers. Whatever the job calls for, Mercury's big line of standard electric trucks holds the answer. That's why, more than ever, management is standardizing on Mercury. Bring this new economy to your plant, too! Mail coupon for up-to-date electric truck data.

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4154 South Halsted, Chicago 9, Illinois

Send complete truck catalog.

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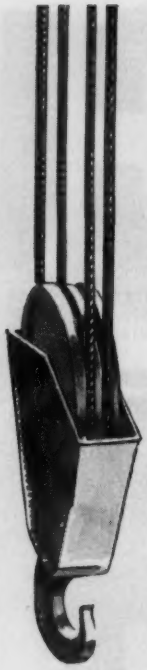
Hold it! How about those slings? That's a $50,000 engine



And if your slings aren't all they should be, it could wind up as $50,000 worth of engine *parts* . . . well-distributed, too.

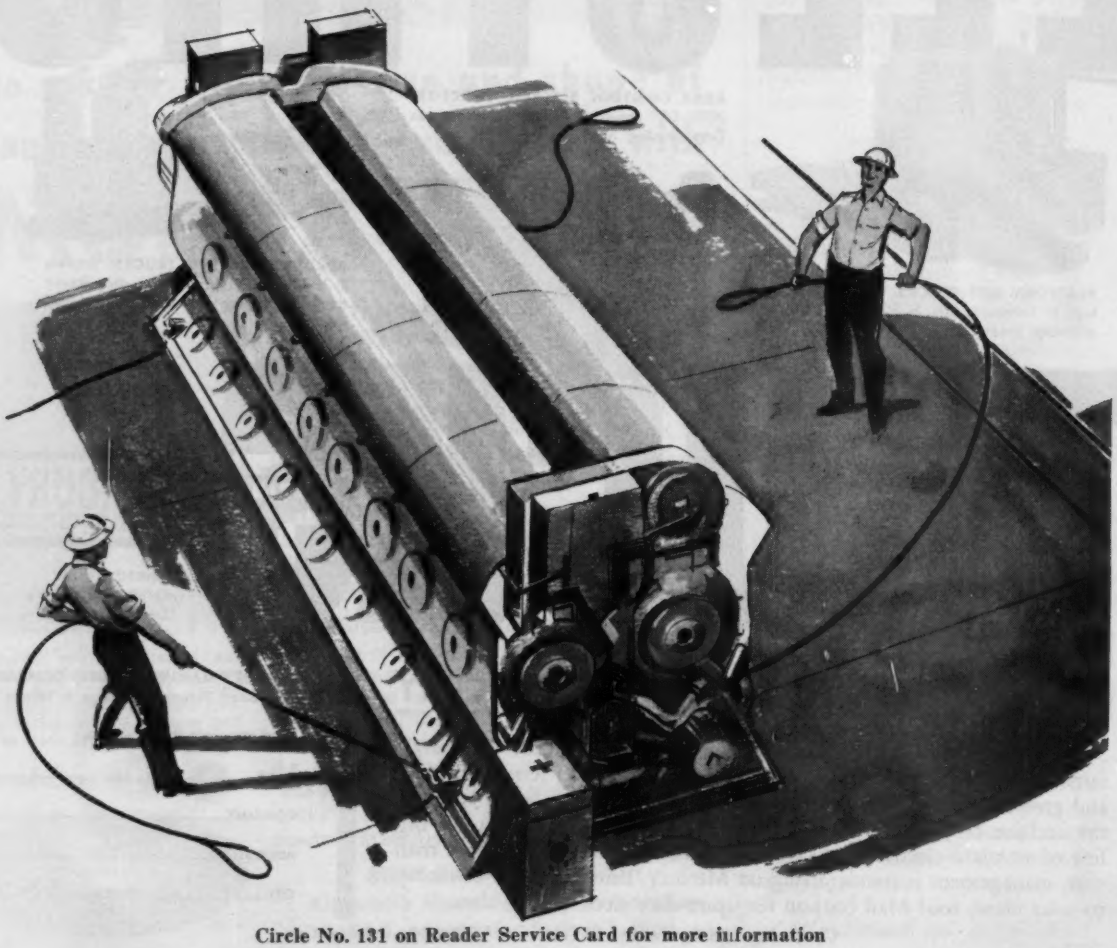
Exaggerated? Perhaps. But the extreme importance of reliable slings never can be exaggerated. Like the extreme reliability of Roebling wire rope slings and fittings for *every* lifting job from an anvil to a zeppelin.

Because Roebling's sling-making scope is so wide and varied, we have put the complete line together in a 56-page book entitled "Roebling Wire Rope Slings and Assemblies." You'll find concise data on virtually any kind of sling you need. This includes All-Purpose Slings, Roegal® Cable-Laid Slings, Flatweave and Railroad Slings and Fittings for all types. And, to quote from the book: ". . . for those installations that require special designs, practical recommendations are available from Roebling's experienced engineering staff . . ."

We'd like you to have a copy. It will immediately be forthcoming when you write to Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation



Circle No. 131 on Reader Service Card for more information

NEWS from the SALES FIELD

W. G. Lanterman

Lamson Corporation has appointed **W. Gerald Lanterman** as manager of sales of the industrial division. Lanterman will be responsible for all field sales activities relating to industrial conveyors and pallet loaders. Prior to his appointment, Lanterman was Cleveland regional manager.

The Yale & Towne Manufacturing Company has opened a new sales and service branch in Cleveland which will serve as headquarters for Yale industrial lift truck centers in Northeast Ohio. The Cleveland branch is located in a 12,000 square foot building which contains modern offices, a $150,000 replacement parts inventory and more than 5000 square feet of service shop space. **John R. Hogan,** a veteran of almost 20 years in industrial lift truck sales and service, is branch manager.

Edwin J. Kaake has been appointed national sales manager for **Seal-O-Matic Corporation.** He was formerly associated with Remington Rand, Inc. as a branch field manager and as sales manager for Atlantic Engineered Products. He will direct overall sales policy for the company and its affiliate, Flash Manufacturing Company.

The Industrial Division of Gould-National Batteries, Inc. has appointed **W. S. Sanderson** to the newly created position of manager of education and train-

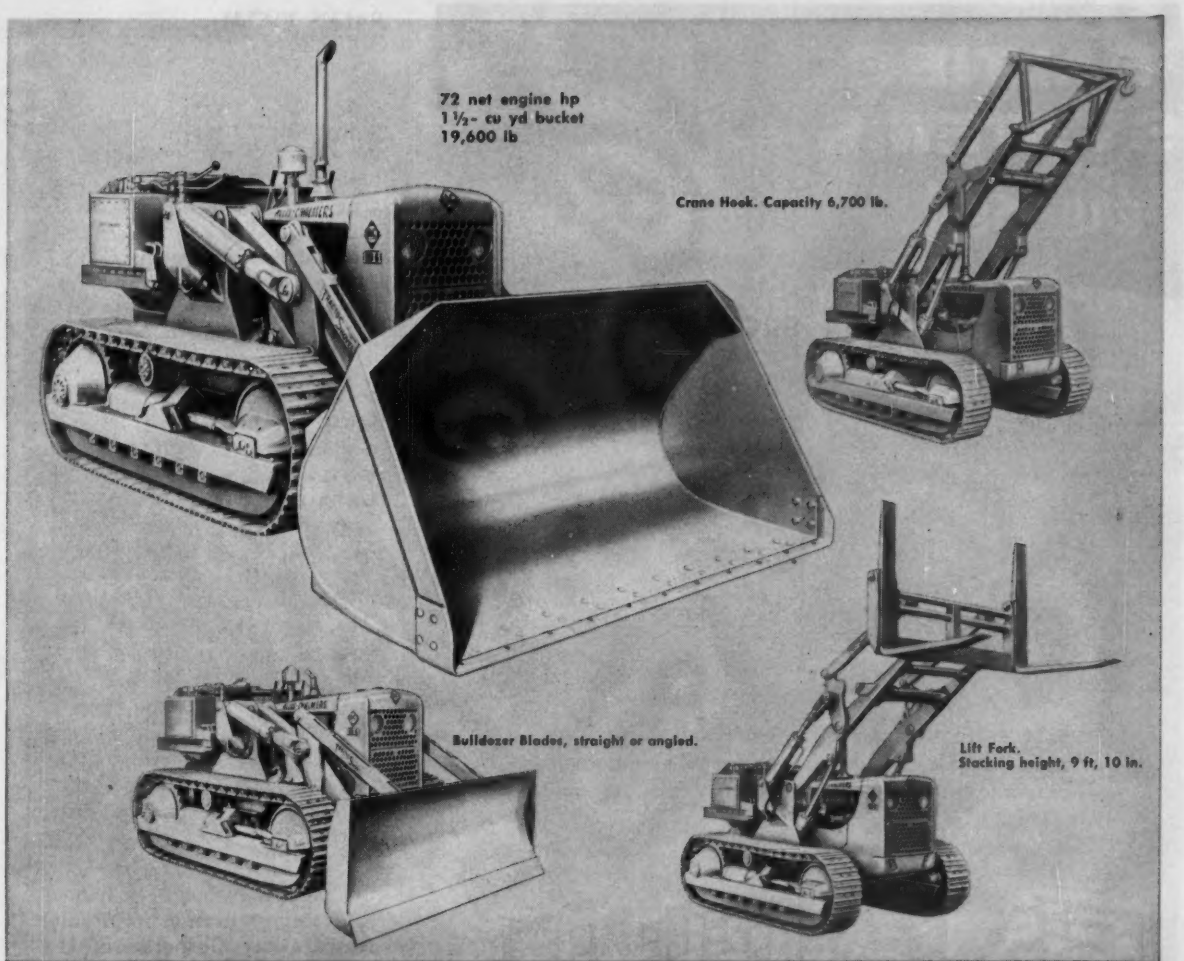
ing. In this position, Sanderson will direct the company's new sales training program designed to coordinate technical presentations and improved application of product information.

D. W. Dewey

Truck-Man Div. of the Knickerbocker Company has appointed **David W. Dewey** as sales manager of the company. Dewey has had more than eleven years experience in lift-truck sales to dealers and users in the Philadelphia, Baltimore and Chicago territories for another manufacturer.

Harrison Taylor has joined the headquarters service division, engineering department, at **C & D Batteries, Inc.** He comes to C & D following thirty-five years' service with Electric Storage Battery Company.

Clark Equipment Company has appointed **John E. Mitchell** manager of the factory sales and service branch in New York City, and **Marvin B. Dickey** as manager for a midwest district covering clark dealerships in Detroit and Grand Rapids, Mich., South Bend, Ind., Toledo, Ohio, and Toronto, Ontario. **Deal F. Patterson** has been named manager of a northeast district covering all of New England, Albany, Syracuse and Buffalo, N. Y., and Montreal, Quebec. **William C. Portman** will be manager of an east central district covering Ohio, Pennsylvania, West Virginia and Virginia. Clark has also named **Phillip E. Campbell** as sales manager of the gas truck section, and **John Borman** as sales manager of the attachments section. **R. W. Self**



HERE'S THE KEY TO OUTDOOR STORAGE

Flotation, balance and stability for all ground conditions; traction and power for heavy work; mobility and flexibility for handling many types of material — these advantages offered by the Allis-Chalmers HD-6G tractor shovel become increasingly important as the *trend toward outdoor storage gains momentum.*

With 72 net engine hp and long tracks, the HD-6G goes to work even before storage operations start. It clears and levels new areas; excavates, loads or spreads gravel and other surfacing material using a bucket or interchangeable dozer blade.

In the storage yard, the HD-6G stockpiles bulk materials, feeds hoppers and conveyors using a dozer blade, a 1½-yd standard bucket or a 2¼-yd light materials bucket. It can also stack palletized material to a height of 9 ft, 10 in. with a lift fork attachment and handle heavy castings with a crane hook. All attachments are quickly interchangeable.

In winter it's "business as usual" when the HD-6G tractor shovel is on the job. This crawler tractor easily clears or loads deep snow.

Take advantage of the latest developments in all-weather preservatives and packaging with this efficient, all-weather material handler. Let your Allis-Chalmers dealer show you how the HD-6G tractor shovel can be your key to efficient outdoor storage. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS *Engineering in Action*

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SALES FIELD

Continued

will manage a midwest district for Clark. Three new dealers have also been named. They are: **Brodie Industrial Trucks Inc.**, Rochester, N. Y.; **Atlantic Industrial Truck Corp.**, Little Ferry, N. J.; **Elm Equipment Company**, Mobile, Alabama.

F. H. McCarty

Frank H. McCarty has been named sales manager of **Lansing Company.** For the past four years McCarty has been sales manager of the Garden Sprayer Department of John Bean Division of Food Machinery and Chemical Corporation. Prior to that, he was sales manager at the Oakes Division of that corporation. He has had 19 years experience in distributor sales.

J. W. Allen has been named sales representative for **Faultless Caster Corporation.** He will work out of the firm's West Coast district office in Los Angeles. He will handle the complete line of casters sold to original equipment manufacturers.

The **Austin-Western Works, Construction Equipment Division, Baldwin-Lima-Hamilton Corporation** has designated **Elmer H. Fredrickson** export sales manager. Fredrickson succeeds Chester Cotten, who has retired. He has been with Austin-Western since 1919.

Raymond F. Allen has been appointed vice president and director of marketing and sales for **Thermoid Company.** Allen will supervise all sales activities of Thermoid's multi-plant operation. Prior to joining Thermoid, he was vice-president of sales at Stansteel Corp.

(Continued on page 158)

Here's a loss that can't be ignored:

REPLACEMENT TIRE COSTS SABOTAGE PROFITS!

Squeezed between surging costs and diminishing profits, companies of all types must achieve new operating economies. Materials handling expenses . . . including solid tires for lift trucks . . . are receiving critical attention from management and purchasing executives. They want results, not excuses, in cutting replacement costs.

That is why more and more lift truck users are buying MONARCH industrial tires. Manufactured by solid tire specialists, MONARCH tires are made from special Compound T-48C, the toughest natural rubber stock developed to date. MONARCH tires assure substantial savings because they give more mileage, superior performance and less trouble per dollar invested.

Don't let tire replacement costs sabotage your profits . . . use MONARCH industrial solids. You'll get premium quality at competitive prices in a complete range of types and sizes.

Check the Yellow Pages for your nearest Monarch dealer. Ask him, or write direct, for our new 16-page CATALOG MR-457. It's full of facts, specifications and suggestions to help you save more on solid tires.

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RUBBER COMPANY
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• 1035 Bartlett Street, Hayward, Calif.

7957-MR

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Coming or going . . .

MAGLINER DOCK BOARDS

Improve any dock operation

Loading Costs Too High? Chances are a difficult truck or rail dock problem is preventing smooth, efficient loading and unloading. Maybe your dock is too narrow, too congested . . . your men are hampered by the lack of proper space for loads and equipment. Or maybe your operation is slowed down by awkward height differences from dock-to-carrier, curved tracks, loading from ground level, or any one of a great many freight handling conditions that build up costs. Whatever your dock problem—it can be easily solved with a Magliner magnesium dock board.

And here's why!

Magliners are engineered to meet the specific requirements of your dock and operating conditions. Made of magnesium for easy one-man handling, Magliners are light, strong and safe. They're easy to put down . . . easy to move. Men loads and equipment move *fast, sure,* safe—protected against accidents and costly damage. And Magliners can take it . . . give rugged, dependable service . . . safely handling loads up to 10 tons or more. *Other advantages!* Low initial cost . . . less maintenance—plus such Magliner features as Tire Saver side curbs and Triple Strength curb ends. For important on-the-dock savings *coming or going* get Magliners on the job!

Please send me my copy of "How to Cut Dock Loading Costs."

Check here for information on:

- ☐ Movable Dock Boards
- ☐ Permanent-Type Dock Boards
- ☐ Mobile Loading Ramp
- ☐ Delivery Truck Ramp

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

MAGLINE INC., BOX 18, PINCONNING, MICHIGAN

Canadian Factory: Magline of Canada, Ltd., Renfrew, Ontario

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VIEWS AND TRENDS

The Cost-Cutting Conscience

One couldn't count the number of ways in which it's been said that a material handling specialist belongs on the management team of every company. Or that, at least, someone "high up" should have the responsibility for improving handling in any kind or size of operation. But the best we have heard to date was an expression by Arthur L. Lewis, President of Lewis-Shepard Products, Inc.

In an editorial in *The Journal of Commerce*, he called the material handling supervisor "the cost-cutting conscience of the company".

Mr. Lewis believes the pioneering stage in material handling has ended—that today's equipment is sound and will require only further refinement to meet future needs. Business and industry now knows what it wants from material handling equipment, he said. And, further, that if available equipment can't do the predetermined job and produce the expected savings, companies just will not invest. The advent of the material handling supervisor has been a major factor in this developement. His growth in stature, Mr. Lewis concluded, has paralleled the climb of the material handling industry to its present maturity.

And where the material handling supervisor goes from here is the subject of considerable discussion today. It is generally agreed that he must think more in terms of methods and systems than he did a few years ago. He will be called upon to advise in relation to other company objectives in addition to production—on such phases as safety, personnel, finance, distribution, and communications, to name a few—and he will, more and more, become concerned in packaging as it becomes involved with material handling.

Deep Roots For Heavy Growth

It's easy (and old hat) to talk and think about material handling as a post-War-Two technology. Sure, it has been one of the most spectacular developments of the past 15 years or so. But a company's anniversary and a book I recently found have brought about a reflection on our substantial history.

This year marks the 50th year of growth and progress for the Hamilton Caster & Mfg. Co. The firm was established in 1907 and long ago adopted a slogan that has become a basic requirement for many a material handling system—"Put it on wheels and keep it moving." It started in little more than a shed, to produce a few items of handling equipment for local needs, and today has a thriving and modern plant making an extensive line of equipment marketed throughout the world.

The book is in the engineering library of Jeffrey Manufacturing Co.—itself no youngster in the business, with a starting date in the "eighties". It is a big and comprehensive volume titled, "A Cyclopedia of Materials Handling", issued in 1921.

Ed Leighton **Editor**

FORD MOTOR COMPANY—The Rouge plant . . . greatest industrial concentration in the world. Some of the largest *Clarklift* models are at work here, assigned the rugged task of handling steel in the Frame plant's outdoor storage area. These Clark trucks can move 17½ tons of material at a time . . . have greatly reduced the need for large storage space in the area.

HERE'S WHAT DETROIT USERS THINK OF THE NEW CLARKLIFT

Detroit is a complex industrial giant. Chemicals, metal products, electrical apparatus are part of its industry. Even salt is mined far below the city streets. And, of course, it builds almost half the nation's autos.

Because Detroit sets the fast pace of the automotive industry it is alert to new design, keen on superior mechanical performance. It is a city that provided the real acid test for *Clarklift* trucks.

Clark called on its years of experience to design the ultimate in a fork lift truck. After engineering and design work was complete, and many thousands of hours in the Clark laboratories and testing grounds, the new *Clarklift* was made available to the material handling industry.

"*Clarklift*," said a Detroit president, "is a fork truck that, in a sense, utilizes automotive design and performance. It has a dozen unusual features, every one of which is practical and saves effort. It is a sound investment that offers many dividends."

A test in your plant, under your specific operating requirements will prove the point. For a demonstration call your local Clark dealer (in the Yellow Pages), or write us direct.

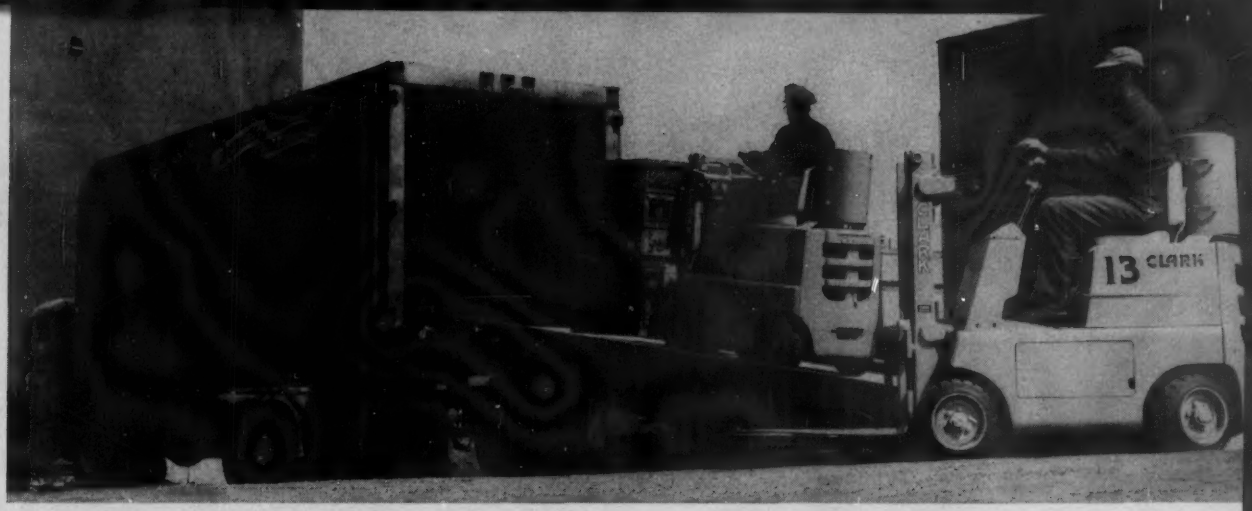
Industrial Truck Division

CLARK EQUIPMENT COMPANY
Battle Creek 13, Michigan

CLARK EQUIPMENT

CLARKLIFT is a trademark of Clark Equipment Company

Circle No. 41 on Reader Service Card for more information



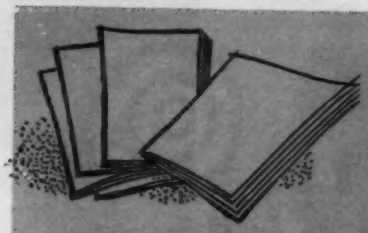
PFEIFFER BREWING COMPANY—"We handle a lot of beer here . . . 80,000 cases a day in this plant," says Frank Hamilton, Vice President. "We bought 5 new *Clarklifts* as part of our complete modernization program—but only after a competitive comparison. Based on our tests, we decided these were by far the most efficient machines available."

SCOTT PAPER COMPANY—Over 160,000 cases speed through this warehouse each month. Handling the bulk of this material is a new *Clarklift*. With such standard features as finger-tip controls, an automatic transmission and faster lifting speeds, it's no wonder drivers like the *Clarklift* . . . no wonder too, it handles more work.

BELLEVUE PLATING CO—"Over 50 tons of material is plated each shift," said Albert Betteley, Vice President. "Almost all production is automatic yet we don't have a repair shop because all our men are used in production. That's why we needed fork trucks that would require the least care. It's the main reason we chose *Clarklifts*."

BRAUN ENGINEERING CO—"As manufacturers of steel impact extrusions, our operation is tough on handling equipment," said Alfred Braun, Secretary-Treasurer. "This truck seems to thrive on it though . . . keeps material moving as fast as we can produce it. We use it in a dozen ways —actually would be lost without it."

SUPERIOR SEPTIC TANK CO—"It's surprising how a big machine like this can work in such close quarters. It does exceptionally well," reports John Francis Sr., President. "We used to have a mud and frozen rut problem until we got this truck. No problem now—it gets the work done under all conditions."



CATALOGS

offered in

Opens and Closes Doors Automatically . . . eliminates the necessity for truck operators to leave their trucks to open and close doors manually. Keeps personnel and materials moving at a pace that will not bottleneck production output. May be used on any new or existing doors that swing, slide or fold. A folder "Plant Ideas to Make Efficiency Grow" gives full information and is offered you by the Magic Door Div., The Stanley Works.

Circle 139 on Reader Service Card

Completely Automatic Loading Platform . . . has a hydraulic mechanism which is completely sealed forever. Standard, ready-to-install self-leveling units. The "Load-O-Matic" bulletin offered by Field Engineering Products Co. gives complete information.

Circle 67 on Reader Service Card

Blue Book of Packaging . . . is the title of a 36-page booklet offered you by the Gerrard Steel Strapping Div., U. S. Steel Corp.

Circle 74 on Reader Service Card

Truck Index . . . describing over 600 combinations of sizes and capacities is offered to you by Revolvator Co.

Circle 130 on Reader Service Card

Casters and Wheels . . . rust-proofed by zinc plating, insuring protection against corrosion from water, steam and chemicals. Also feature a string guard to insure easy rolling at all times. Literature giving full details is available from Darnell Corp., Ltd.

Circle 51 on Reader Service Card

Case Histories of Production Line Savings . . . a compilation of 35 different case histories from Cyclone Fence Department, American Steel & Wire Div., U. S. Steel Corp. shows how producers have cut costs, increased production, saved space and time and lowered labor costs with Cyclone Belts. There's a copy waiting for you from Cyclone.

Circle 49 on Reader Service Card

Shelving Reference Manual . . . is the title of a 56-page booklet offered you by the Deluxe Metal Furniture Co. It gives a description of their complete line of shelving and also discusses their "On-the-spot" shelving layout service for efficient, flexible shelving installations.

Circle 53 on Reader Service Card

Hairline Stops and Starts . . . plus greater safety are features of the powerful two-brake 'Budgit' hoist. This hoist has a motor brake and a load brake which operate simultaneously, automatically. Each alone is strong enough to hold the full load safely. Braking action is so quick, load-spotting time is greatly reduced. Full information on the 'Budgit' Hoist is available from Manning, Maxwell & Moore, Inc.

Circle 105 on Reader Service Card

Now You Can Handle . . . heavy rolls of paper, drums or barrels easily with the Ironbound Rol Truk manufactured by the Ironbound Box & Lumber Co. The Rol Truk, together with information on their skids, dollys, and hand trucks, is described in literature available from the company.

Circle 85 on Reader Service Card

End Dockboard Slippage . . . with Magcoa Span-Locks. These Span-Locks are fully adjustable to any span, are simple in construction and low in cost. A special Dockboard & Span-Lock Facts File is offered you by the Materials Handling Div., Magnesium Co. of America.

Circle 104 on Reader Service Card

If You Ship Odd-Shaped Parts . . . you'll like the way flexible Green Core Super Cloth Rap conforms to the shape of your products. It's water-proofed, greaseproofed and self-sealing. Lock seam joints are as greaseproof as the material itself. Samples and complete data are available from Mid-States Gummed Paper Co.

Circle 110 on Reader Service Card

Only $1.87 per Day to Own and Maintain . . . is the report of one user of Lewis-Shepard Products, Inc. Model "E" electric truck. A catalog on the Model "E" and a comprehensive cost study discussing gas versus electric trucks are offered to you by the company.

Circle 96 on Reader Service Card

Solid Rubber Tires . . . with E-Z rolling tread are discussed in a folder offered by Phoenix Mfg. Co. Special treads such as hard rubber, static conducting or oil resisting are also available.

Circle 124 on Reader Service Card

Industrial Engines . . . for use in the construction and material handling fields are discussed in literature available from the Industrial Engine Div., Chrysler Corp.

Circle 39 on Reader Service Card

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25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500

and BULLETINS

advertisements in this publication

The Belt With the Bounce . . . is what Buffalo Weaving & Belting Co. calls its conveyor belting. It absorbs impact and it is said that nothing you normally convey can dent, dig or destroy this belt except old age. A 14-page manual on "How to Buy the Correct Belt for Your Conveying Job" is offered.

Circle 34 on Reader Service Card

Shipping and Storing Containers . . . suitable for use with perishables, cellophane, wire, drugs, dyestuffs, shortening and many other materials are discussed in literature available from Continental Can Co. These containers are light weight to make handling easy and to keep freight costs down yet they are sturdy enough to take even the roughest treatment.

Circle 50 on Reader Service Card

Lift It the Low-Cost Way . . . with dependable hydraulic power. The Rotary Levelator Lift uses dependable, economical oil-hydraulic power to load trucks from floor level, move traffic from one floor level to another or to assist in the feeding of certain types of machines. A catalog on their Levelator Lifts is offered by Rotary Lift Co.

Circle 132 on Reader Service Card

Shielded Electrification . . . for MonoRail track and crane systems is now offered by American MonoRail Co. Completely safe electrified systems are now made possible by covering standard bus bar electrification with a specially designed polyvinyl chloride extrusion. This Kant-Shock shielding absolutely prevents accidental contact with live bus bars and it is impossible for an adult's finger to enter the shield. The Kant-Shock Bulletin KS-1 giving full details is offered by the company.

Circle 12 on Reader Service Card

Work Positioners . . . automatically move material up to a convenient work-level. Whether full, partially filled, or nearly empty, the top layer of material in the work positioner remains always at the same height. Illustrated literature is yours for the asking from the Lowerator Div., American Machine & Foundry Co.

Circle 11 on Reader Service Card

Industrial Packaging Papers . . . in asphalt and non-asphalt laminants, flat and creped krafts, and a selection of strengths are described in literature available from American Sisalkraft Corp.

Circle 13 on Reader Service Card

Vertical Speed Reducers . . . designed specifically for conveyor applications requiring a vertical output shaft and extended bearing housing for high overhung load. The reducers feature readily accessible helical gears for ratio changes. A bulletin giving further information is available from Anchor Steel & Conveyor Co.

Circle 157 on Reader Service Card

Impact Testing . . . to simulate sudden starts and stops on corrugated-packaged products is just one phase of the engineering research which goes into the boxes and cartons produced by Gaylord Container Corp. Informatio
their complete line of corru
and solid fibre boxes, folding
tons, kraft paper and speci
bags and sacks is yours fo
asking from the company.

Circle 72 on Reader Service

Safety-Step Ladders . . .
easily from place to place as
are equipped with large r
ball-bearings casters which r
under user's weight enablin
legs to grip the floor firmly.
able in a wide variety of size
models to meet working heig
quirements up to 11′ 6″. L
ture is offered by Ballymore

Circle 21 on Reader Service

All-New Electric Hoist
Everything is built-in and enc
to achieve complete streaml
Automatic up- and down-sto
safety. Push button controlle
"Detroiter" can also be furn
for air motor operation in
of electric motor. Bulletin
gives complete details and
fered by the Detroit Hoist an
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Circle 55 on Reader Service

Hydraulic Truck Levele
Case studies on their truck
elers, machine feeding lifts, "
O-Matic lifts, ramp eliminato
bridge lifts are available
Globe Hoist Co.

Circle 75 on Reader Service

How to Reduce Fork
Operations Costs . . . Wit
Gas, is the title of a brochu
their LP-Gas Carburetion
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Circle 37 on Reader Service

. Information on
line of corrugated
boxes, folding car-
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is yours for the
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CATALOGS AND BULLETINS

Continued

Take-Up Reel . . . feeds and retrieves power cord in any direction. Enclosed copper graphite and collector rings eliminate dangers of exposed collectors, trolleys, etc. Neoprene covered cables seal out moisture, oil, and chemical fumes. Full information is available from Appleton Electric Co.

Circle 15 on Reader Service Card

No Drilling or Welding . . . is required when using Dexion framing material. Merely cut and bolt the pieces together to your exact specifications. The "Dexion Constructed Guide," offered you by Acme Steel Co., Dexion Div., describes this material and its uses.

Circle 2 on Reader Service Card

Electric Fork Trucks . . . Complete data on the Automatic Docker is yours for the asking from Automatic Transportation Co. Also included are case histories of installations which might be similar to yours.

Circle 17 on Reader Service Card

If You Have to Fasten . . . corrugated board, cartons, fabric, leather, plastic bags, wood, roofing, rubber or light metals, you'll want the free bulletins showing how stapling can cut costs in these operations. They're being offered by Bostitch, Inc.

Circle 29 on Reader Service Card

Pneumatic Tired Industrial Trucks . . . in the 3000, 4000 and 5000-lb. capacity range are said to be the most maneuverable in the industry. Their short turning radius is said to allow more storage area to be utilized and permit more work being done. Full information is available from Hyster Company.

Circle 82 on Reader Service Card

Hoists and Crane Components . . . are discussed in a catalog offered you by Wright Hoist Div., American Chain & Cable Co., Inc.

Circle 9 on Reader Service Card

High Capacity V-Belts . . . built with larger, stronger, endless twin grommets to transmit greater horsepower. This means fewer belts per drive, reduction in overall weight, and less space required for any given load. Greater flexibility gives these belts one-third more gripping power. Further information on their "Power King" belts is offered by the Goodall Rubber Co.

Circle 76 on Reader Service Card

Package Imprinter . . . ideal for imprinting anything from a code-date on a preprinted wrapper to complete display copy on five sides of a bundle over-wrap. Fully automatic—requires no attention during operation. Complete information is available from Adolph Gottscho, Inc.

Circle 78 on Reader Service Card

Tension and Seal Strapping With One Hand . . . with the Signode Model SFC. It's light and well-balanced so that the operator can easily hold and operate it with one hand—even on the side of the package. Permits freedom of the other hand to position the strapping and turn the package or move it on to the next station. Full information is available from Signode Steel Strapping Co.

Circle 135 on Reader Service Card

Adjustable Storage Racks . . . One man can adjust rack to any level. "U" shaped brackets slide up and down formed posts and when the desired level is reached, merely slide the dual wedges into slots in back of the posts. They are self-locking. Over 800 different sizes and capacities may be constructed from five basic parts. A catalog on their Slide-n-Lock adjustable storage racks is offered you by American Metal Products Co.

Circle 160 on Reader Service Card

Easy to Assemble Shipping Containers . . . One man with a hammer quickly assembles the Ackermann Band-Box. Clip fasteners attach easily and securely hold sides and Stack-Lock Corners. These containers are self-palletizing, perfect for storage and are reusable. Full information on these containers is available from Ackermann Mfg. Co.

Circle 163 on Reader Service Card

Walking-Type Truck . . . A booklet giving construction details, features and reasons why a Powrworker will profit your operations is offered you by Clark Equipment Co., Industrial Truck Div.

Circle 42 on Reader Service Card

Wire Rope Slings . . . are low in cost, yet a single failure can cause thousands of dollars in damage and endanger everyone on the job site. Complete details about safe, dependable Wickwire Wire Rope Slings is yours for the asking from Wickwire Spencer Steel Div., The Colorado Fuel and Iron Corp.

Circle 43 on Reader Service Card

For Special Fume Problems . . . A catalytic exhaust purifier that works with leaded gasoline is available from Oxy-Catalyst, Inc. Carbon monoxide, hydrocarbon, exhaust fumes and odors can now be safely controlled with the new Oxy-Muffler. Details are available from the company.

Circle 121 on Reader Service Card

Add To Your Conveyor System . . . the quick-change Erecto way. Whether it's ten feet or 1000, you add as many feet as you need, when you need them. You can install curves, spurs, ball top tables, and turntables. Adapts itself to any change in plant layout. A booklet describing these Erecto Conveyor Units is offered you by Lamson Corp., Erecto Div.

Circle 92 on Reader Service Card

How to Cut Dock Loading Costs . . . is the title of a booklet on dock boards and truck loading ramps and is offered you by Magline Inc. Made of magnesium for easy one-man handling, Magliners are light, strong and safe. They're easy to put down and easy to move.

Circle 101 on Reader Service Card

Woven Wood-and-Wire Containers . . . which fork lift trucks can pick up singly or in multiples. The skids interlock when stacked so they can't slip. Details are available from G. B. Lewis Co.

Circle 95 on Reader Service Card

If You Handle Drums, Kegs or Barrels . . . there is a Kughler attachment that will do the job for you. These simple mechanical and automatic devices handle one or two drums, vertically or horizontally, or will manipulate them either way and then serve as forks to handle pallets. Further information is available from Little Giant Products, Inc.

Circle 98 on Reader Service Card

Fully-Automatic Strapper . . . handles all sizes and proportions. There is said to be nothing like it to beat load slow-down in volume shipping schedules. Full information on the "Auto-Band" is available from General Strapping Corp.

Circle 70 on Reader Service Card

Interplant Transport Systems . . . can automatically transport materials unattended from

CATALOGS

Continued

point to point anywhere in or about your plant and it can select the shortest and most direct route. It can travel from floor to floor and building to building, open doors to let itself through and close doors behind it. It stops promptly when there is a load ahead or when it does not have the right of way. "Automatic Materials Handling", a book on Louden Automatic Dispatch gives full details and is offered by The Louden Machinery Co.

Circle 99 on Reader Service Card

Eliminate Creeping Rust . . . under the enamel of your steel equipment—shelving, lockers or cabinets. Each sheet of steel used in Penco equipment is given a phosphate base to provide protection against the spread of rust that ages equipment rapidly. Further information is available from Penco Metal Products Div. Alan Wood Steel Co.

Circle 123 on Reader Service Card

Tubular Conveyors . . . move almost any bulk material—wet or dry—through any plane or angle. They're dust, liquid and odor-tight. A catalog giving further information is offered you by Hapman Conveyors, Inc.

Circle 80 on Reader Service Card

Recharge Truck Batteries Anywhere in the Plant . . . with the K-W complete power unit system. Needs no special charging equipment, has no moving parts, cost and down time for battery maintenance is low and it prolongs battery life. Uses any 110-120 volt, 50/60 cycle AC circuit. Full information is available from K-W Battery Co.

Circle 91 on Reader Service Card

Seal-Less Strapping . . . With this new method, you have only the strapping itself to work with —no seals. No time is lost apply-

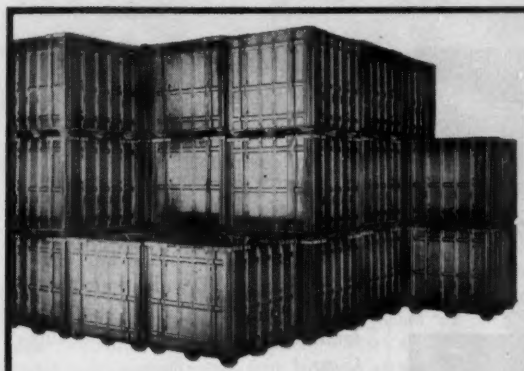
The ideal shipping container is...

easy to assemble...

"One man with a hammer" quickly assembles the Band-Box. Clip fasteners attach easily, securely hold sides and Stack-Lock Corners.

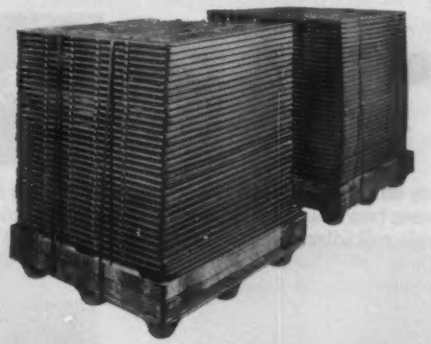
self-palletizing...

Every Band-Box bottom is its own pallet. Can be stacked ceiling-high without toppling. Use alone or assembled as a full Band-Box. 4-way entry with hand or power lift-truck.



perfect for storage...

The all-steel Band-Box is available with Stack-Lock Corners or full cover for storage protection. It's painted, chemically treated and enameled.



nestable and reusable

Nested, 17 space-saving Band-Boxes take up the same cubic area as one assembled unit. And they can be used over and over again.

Get all these features in the Ackermann BAND-BOX

PATENT APPLIED FOR

Look at these features in terms of dollars and cents . . . you'll see how *economical* the Ackermann Band-Box is. You'll see ways for your shipping department to save money up and down the line.

Get full cost-cutting details on the Band-Box —perfect answer to inter-plant and intra-plant shipping and storage problems. Write, wire or call Ackermann Manufacturing Company (Subsidiary of Wheeling Steel Corporation), Wheeling, West Virginia.

WHEELING STEEL

IT'S WHEELING STEEL

Circle No. 163 on Reader Service Card for more information

CATALOGS

Continued

ing seals. A simple operation tensions the strapping and mechanically interlocks the two ends so the joint will test from 77% to 86% of the strength of the strapping itself. Literature is offered by Inland Wire Products Co.

Circle 83 on Reader Service Card

Fork Trucks . . . which are said to lower operating cost, reduce man-hours per job and cut maintenance to a minimum are described in two folders from Lamson Mobilift Corp. One of these folders deals with the "sit-down" type truck and the other with the "stand-up" type truck.

Circle 93 on Reader Service Card

Noiseless Casters . . . of high-strength, hard rubber compound perform capably in humid temperatures ranging from 32° to 100°F. Will not develop soft spots or damage wood floors. Unaffected by fats such as shortening, fruit, acids, milk acids, flour, etc. Further information is available from Jarvis and Jarvis, Inc.

Circle 88 on Reader Service Card

Powerized Hand Trucks . . . offer such features as two drive wheels instead of one; two brakeing systems available instead of one; four wheel stability instead of three; alloy gear transmission instead of chains; 50% less maintenance and finger-tip control. Bulletin KW gives full details and is offered by Lift Trucks, Inc.

Circle 97 on Reader Service Card

One-Man Car Door Opener . . . opens any box car door in 20 seconds or less with little effort. Multiplies one man's strength a hundred-fold. Details are available from The Nolan Co.

Circle 116 on Reader Service Card

Short Case Sealer . . . glues, folds and seals either or both top and bottom flaps in one operation —automatically. Speeds up to 30 cases a minute. Details, floor plans and specifications are available from A-B-C Packaging Machine Corp.

Circle 162 on Reader Service Card

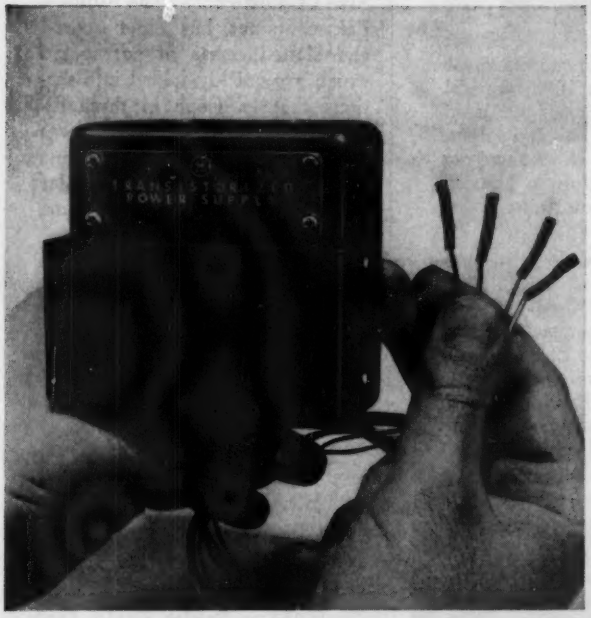
Portable Belt Conveyor . . . for use in assembly, inspection, and packaging is described in a Unitable bulletin available from Conveyor Specialty Co., Inc. The conveyor is available in ten to eighty foot lengths.

Circle 47 on Reader Service Card

Floor and Truck Cranes . . . are powered by variable-stroke, double-acting hydraulic pumps that provide plenty of reserve lifting power yet permit you to adjust pumping effort to load by simply rotating the pump handle. Also, an internally-mounted automatic by-pass in every control valve prevents all overloading dangers. Further details and

General Electric announces

New transistorized power supply for two-way radio



General Electric now brings you the vastly improved reliability of transistors — *without obsoleting your present equipment!*

The all-new General Electric Transistorized Power Supply—part of G.E.'s advanced Progress Line—replaces the receiver portion of the mobile power supply and eliminates the receiver vibrator.

Here's what this means: Previously you had to replace receiver vibrators several times a year. Our surveys indicate each replacement costs you from $10 to $18, depending upon service call mileage. Now you can install a power supply costing only $54.50 (when installed in new equipment at the factory, just $44.50) which has the same life expectancy as your entire mobile combination. *The new G-E Transistorized Power Supply will easily pay for itself the first year or two on vibrator replacements and service calls!*

Easy to install—Three mounting studs fasten the new unit to the front of your case or inside the older, two-unit design equipment. Electrical connections are simple: only four leads to attach.

Eliminates "Vibrator Hash" — All traces of the "vibrator hash" which interferes with clear reception are gone for good.

Easily added to any 12-volt system — The new power supply can be used with all standard makes of two-way equipment which operate from an ordinary 12-volt power source.

Saves you money when drivers forget—When drivers neglect to turn off their radios before starting a vehicle, the new transistorized power supply cannot be damaged.

Progress without obsolescence — The addition of the new unit to your present mobiles, no matter what make, improves performance, reduces maintenance cost, and adds to the life of your equipment. *There is absolutely no need to buy complete new mobile units to enjoy the advantages of transistors.*

See for yourself how much you save—buy a new unit or several units and try them in your own 12-volt mobile units. Call your G-E communications consultant, listed under "Radio Communication Equipment" in the Yellow Pages. Or order direct by writing General Electric Co., Communication Products Dept., Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Circle No. 73 on Reader Service Card for more information

CATALOGS

Continued

full specifications are contained in Bulletin U-155-53 offered by Uhrden, Inc.

Circle 148 on Reader Service Card

End the Search for a Right-Size Container . . . The Adjusta-Pak container has eight scored and slotted sheets of corrugated which are quickly folded into sections that telescope in three dimensions. Cuts damage, saves cubage and weight and prevents pilferage. A descriptive folder showing details, with a size chart included, is yours for the asking from Signode Steel Strapping Co.

Circle 136 on Reader Service Card

Tires Absorb up to 5 1/2 Times More Shock . . . The U. S. Royal Innacush sponges up more shock so that drivers are less fatigued and loads are less apt to shift and break. Reduces truck maintenance. Full information on their industrial tires is offered by U. S. Rubber Co.

Circle 150 on Reader Service Card

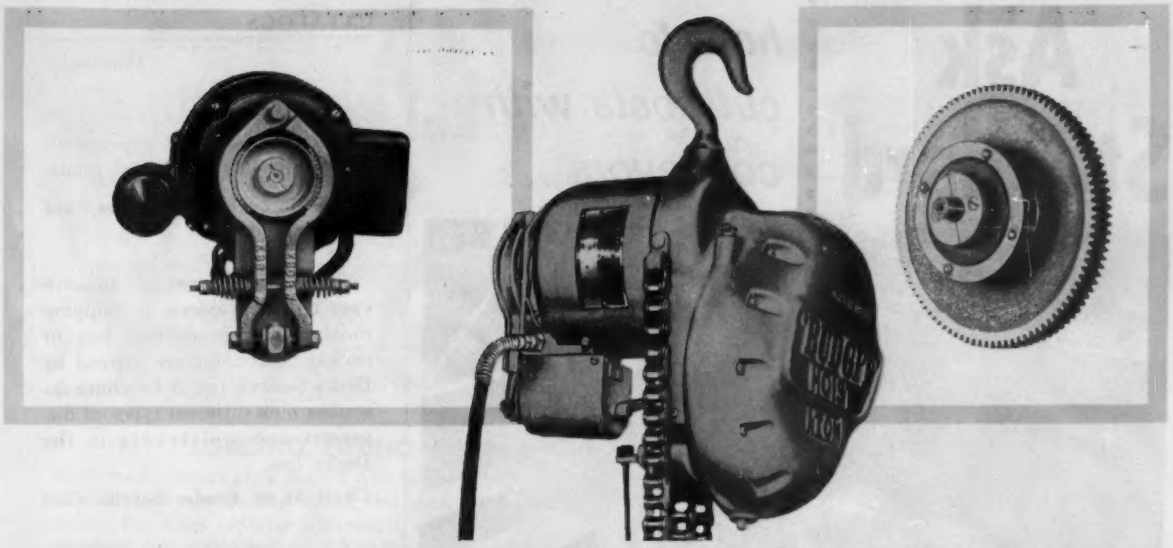
Hand Pumps . . . Operating on both forward and backward strokes, these efficient pumps deliver 20 gallons per 100 strokes. Available with hose or spout outlets. Full details are available from Tokheim Corp.

Circle 144 on Reader Service Card

Belt Conveyor Table . . . may be added on to for any needed length to suit your requirements. Constructed of standard parts. Bulletin USB-1 is offered by Island Equipment Corp. and gives complete details.

Circle 86 on Reader Service Card

Bins With the Strength of Pillars . . . is the title of a booklet offered by The Neff & Fry Co. and describes their silos which are constructed of Super-Concrete Staves with diagonal ends which



POWERFUL TWO-BRAKE HOIST

gives you greater SAFETY plus "hairline" stops and starts

The 'Budgit' Electrical Hoist has a motor brake and a load brake. They operate simultaneously, automatically. Each alone is strong enough to hold the full load safely. Braking action is so quick, load-spotting time is greatly reduced.

The 'Budgit' is easy to operate with one hand. The other hand is always free to guide the load. You get fast Hoisting. A 500-lb. load can be lifted 1 foot in less than 2 seconds. Less hoisting time means less idle time for production machines. More units can be processed per day.

Installation is no problem. Just hang up, plug in and the 'Budgit' is ready to work and save for you. It uses only a few cents' worth of electricity a day; requires very little maintenance.

Ruggedness, efficiency, safety and economy have made the 'Budgit' Electric Hoist the most widely used hoist in the world. Capacities: ⅛ to 2 tons. AC and DC models; also 12-volt battery-operated models for use on trucks. Prices start at $149. *Ask your "Shaw-Box" Distributor for details or write us for Bulletin 402.*

FOR GREATER CONVENIENCE, USEFULNESS

I-Beam Trolley adds travel-ability to any hoist. Bearing-equipped wheels roll smoothly. Fit various size I-beams. Capacities ¼-ton up. Priced from $19.50.

Chain Container collects 'Budgit' tail chain neatly—keeps it up out of the way. Holds up to 25 feet of chain. No drilling, no machining to install. Priced from $17.00.

'Budgit' Cord Reel. Keeps conductor cord taut. Cord may be led off in any direction. Useful on any hoist or other motor device up to 1 HP. 25 and 50 foot cords. Priced from $74.50.

57A-9C

'Budgit'® ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION

366 West Broadway • Muskegon, Michigan

Builders of "SHAW-BOX" and 'LOAD LIFTER' Cranes, 'BUDGIT' and 'LOAD LIFTER' Hoists and other lifting specialties. Other Divisions produce 'ASHCROFT' Gauges, 'HANCOCK' Valves, 'CONSOLIDATED' Safety and Relief Valves, 'AMERICAN' and 'AMERICAN-MICROSEN' Industrial Instruments, and Aircraft Products.

In Canada: *Manning, Maxwell & Moore of Canada, Ltd., Avenue Road, Galt, Ontario.*

Circle No. 105 on Reader Service Card for more information

CATALOGS

Continued

permit steel hoops to impinge directly upon the horizontal joints.

Circle 115 on Reader Service Card

Tape Dispensers . . . to solve your taping problems in shipping room, office, production line or packaging counter are offered by Derby Sealers, Inc. A brochure describes nine different types of dispensers and moisteners in the Derby line.

Circle 54 on Reader Service Card

Mobile Aluminum Storage Racks . . . speed trips in and out of storage. Carry more payload, cut costs, save time and labor. With light, medium, or heavy duty casters. A free 30-day trial is offered you by the manufacturer, Crescent Metal Products, Inc.

Circle 48 on Reader Service Card

Cranes and Hoists . . . Jib cranes, overhead electric traveling cranes, chain hoists and trolleys, electric hoists, hand geared cranes and crane assemblies are all discussed in Bulletin 5000A offered you by Conco Engineering Works.

Circle 46 on Reader Service Card

Industrial Trucks and Trailers . . . for manual operation, conveyor operation and tractor-pull operation in plants and warehouses are discussed in literature available from Jakes Foundry Co.

Circle 87 on Reader Service Card

Aluminum Conveying . . . Its high reflectivity makes it ideal for use with radiant ovens for drying and heat treating operations. Can be washed easily with steam or hot water. Acid and moisture resistant. Complete details are available from Mercury Industries, Inc., Conveyor Div.

Circle 107 on Reader Service Card

On these . . . and hundreds more jobs

handle work faster . . . save more . . . with BANTAM CR-35!

LOADING, LIFTING

One-man, one-engine BANTAM Self-Propelled CR-35 steps up loading speed and ease, increases safety. Big 6-ton capacity with small, compact, easy-spotting size simplifies your handling jobs — anywhere in your yard! BANTAM travels under its own power has simple one-lever forward-reverse.

STOCKPILING

Storage space tight? Stack your raw materials and finished products with the BANTAM CR-35. High lift and precision control allow safe, sure "inching" of loads into stacking areas. BANTAM's practical size with short 19½′ turning radius allows it to work in cramped space with full pay loads. BANTAM works and travels simultaneously . . . independently.

TRANSPORTING . . . SORTING . . . BULK HANDLING

This handy rig is master of all yard jobs . . . and does them all with fast work cycle and independent travel to boost production—cut costs. Provides safest handling yet, with power up and power controlled lowering of boom. Lowest cost operation, too!

WORK IN AND OUT OF PLANT

It's dual-purpose! BANTAM CR-35 works inside with low gooseneck boom . . . works outside with same boom straight. Easy change—big 6-ton capacity either way. Handle more of those maintenance assignments with your own rig—inside or outside with BANTAM.

F-120

DIG, TOO!

For wider work range, you can work your BANTAM with a full line of digging and handling attachments. More BANTAM bonus advantages!

YOURS FOR THE ASKING

This complete, concise picture and specification bulletin on BANTAM CR-35 self-propelled can be the start of important new savings in your yard handling operations. Ask for Bulletin CR-501. BANTAM also builds carrier mounted and crawler mounted models. Ask about them.

SCHIELD Bantam Co.

251 Park Street, Waverly, Iowa

World's largest producer of truck cranes and excavators

Circle No. 133 on Reader Service Card for more information

HIGHLIGHTS

of the Month's News

MHI's '59 Exposition Nearly Half Sold-Out

The Material Handling Institute's Exposition of 1959, while nearly two years away, already has requests for almost half the available exhibit space, Roland Whitehurst, Exide's Industrial Division vice president and general, who is serving as chairman of The Material Handling Institute's Exposition Committee, pointed this out in a recent report. "Exhibitors requesting space," according to the report, "are divided between MHI members and non-members. This indicates the broad industry interest in this Exposition which is sponsored by the industry and for the industry." The Exposition will be held in Cleveland, June 9-12, 1959, and is limited to companies who sell material handling products, services and accessories used in plants, plant yards, warehouses and in shipping and receiving operations. The more than 170,000 square feet of space will include both indoor and outdoor exhibit space.

Fleming Enters Container Field

Entry of one of the nation's oldest paper board manufacturers into the shipping container field was announced recently. Fleming & Sons, Inc., revealed the addition of a shipping container division in conjunction with their mill in Dallas. The announcement was made by John G. Fleming, board chairman, and Joseph B. Fleming, president, who said that Marvin L. Shelton had joined the organization as general manager of the container division. Thomas E. Holden has been named plant manager of the new division.

Penco Metal Moves

Penco Metal Products Division of Alan Wood Steel Company has moved to a new $2.5 million plant at Oaks, Pa. Growth of Penco's business in the past several years necessitated a substantially larger and better integrated facility. The single-story, air-conditioned plant, located on a 45-acre tract adjacent to the Schuylkill River 10 miles north of Conshohocken, has 163,000 square feet of space, almost three times the size of the old plant in South Philadelphia.

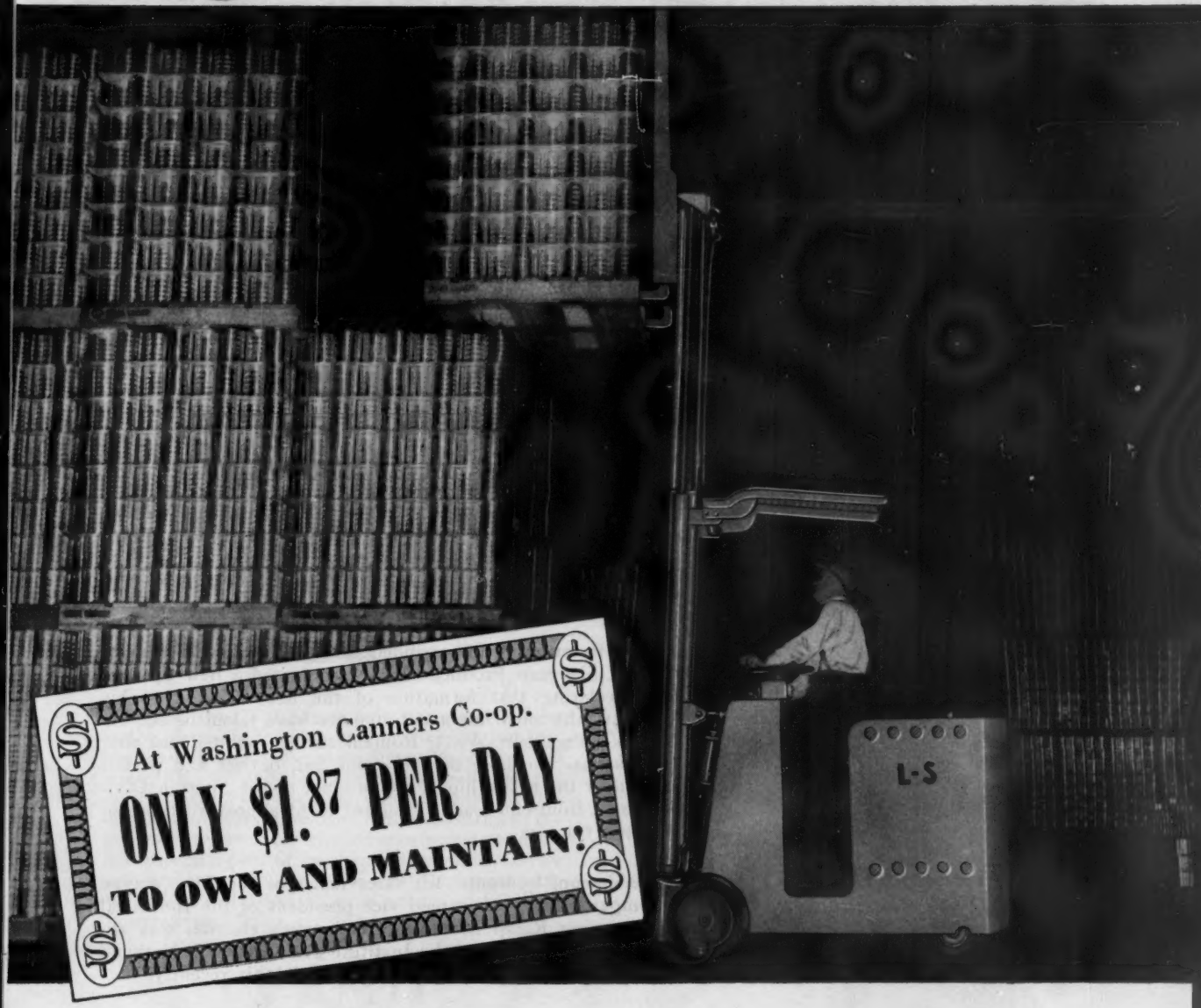
Hewitt-Robins Builds New Plant

A new 60,000-square-foot manufacturing plant for the production of industrial wire cloth and wire mesh conveyors will be built for Hewitt-Robins, Inc., at King-of-Prussia, Pa. The new plant will provide enlarged and modernized facilities to replace those now located in Philadelphia. The single-story building will be erected on a 5-acre plot of land and will incorporate the latest developments in plant design. It will be ready for occupancy about September 1.

Knickerbocker Recovers from Fire

The Knickerbocker Company suffered damages of more than $150,000 when part of its manufacturing facilities was destroyed by fire recently. The company announces it is now back in full production. Orders are being shipped almost on the dates promised, although all production was interrupted for three weeks. S. L. Walker, president of the company, says, "We wish to thank our suppliers and customers for their very fine cooperation during this difficult time for us. This fire could have been disastrous for us if it hadn't been for our many friends."

L-S ELECTRICS FOR LIFT TRUCK SAVINGS



The Washington Canners Cooperative Association, Vancouver, Washington . . . operates a 14-truck fleet of L-S Model "E" Electrics. *Complete operational costs* for the last 10 years show average per truck cost for Lewis-Shepard Electrics is only $1.87 per day . . . or *less than* ¼ that of their gas truck cost!

Everyday working economy is only part of the L-S story at Washington Canners Co-op. These high-tiering, tight-turning L-S Model "E" Electrics have substantially reduced idle aisle space . . . increase warehouse capacity . . . cut man power costs.

Clean, silent, fumeless operation makes L-S Electrics ideal for indoor work. Exclusive "lubricated for life" design, and no under-truck adjustments, push maintenance costs down. Moreover, you get an extremely rugged truck featuring a *specially reinforced* elevating assembly . . . high-pressure hydraulic system . . . *recessed-in-cab* controls for operating ease and safety! Lift heights to 145". Capacities to 4000 lbs. 48" load length.

Compare gas vs. electric truck costs. You'll choose L-S Electrics. Mail coupon below for full information.

Here's a list of important companies that have recently re-ordered L-S Model "E" Electrics:

Electrical Goods Mfr.	has 86	in use	reordered	9
Motor Express	has 21	in use	reordered	10
Office Supply Mfr.	has 17	in use	reordered	2
Refrigeration Plant	has 10	in use	reordered	4
Food Chain	has 3	in use	reordered	7

L-S LEWIS-SHEPARD®
The most complete line of materials handling equipment anywhere
138 Walnut Street, Watertown 72, Mass.
The "MASTER" Line

Please send me: ☐ *L-S Model "E" Catalog #32-1*
☐ *L-S "Gas vs. Electric" Cost Study*

Name.....**Title**.....
Company.....**Address**.....
.....
.....

Circle No. 96 on Reader Service Card for more information

Massey-Harris-Ferguson To Revamp Plant

Massey-Harris-Ferguson, Inc., has started a 100-percent expansion and complete remodeling program of its Detroit plant, says Albert A. Thornbrough, president. Every phase of the tractor assembly operation will be thoroughly reworked and designed for simultaneous assembly, synchronized with incoming orders for the variety of tractor models available. When in full production, the new plant will nearly double the company's Detroit working force and will have a single shift capacity of 250 tractors a day.

Thew Shovel Expands Line

The Thew Shovel Company announces it will manufacture a complete line of rubber-tired front-end loaders in addition to its present line of power cranes and shovels. These loaders will be identified and marketed as "Moto-Loaders". W. H. Madden, as Loader Sales Manager, will supervise a field and distributor organization which will be responsible for the introduction and distribution of these products. In the initial stages, the loader distribution will be confined to selected areas in keeping with production availability.

Inland Container Plans New Box Plant

Inland Container Corporation announces plans for a large, modern corrugated box plant in Chicago are nearly complete. The building will be brick and steel, and will provide more than 140,000 square feet of manufacturing space. Equipment for manufacturing boxes of the latest design, largely built to Inland's specifications, will be installed.

Sherman Products Has New Division

Accelerating its program of expanded manufacturing and marketing facilities, Sherman Products, Inc., has created a new Spartan Division. Declaring that formation of the new division of his company was "the most important step we have taken in our 11-year history," President W. A. Romain further pointed out that it would increase the base of operations and outlets and permit economies over the entire line. First product of the Spartan Division is to be a front-end loader designed to fit almost all types of medium-sized tractors.

Lift Institute Elects Vice President

M. K. Henderson, hydraulic lift sales manager for The Wayne Pump Company, has been named vice president of the Industrial Lift and Loading Ramp Institute. Henderson's election was announced after the meeting of the Institute during the 7th National Materials Handling Exposition held in Philadelphia recently.

120 Select Space In PMMI Exposition

A total of 120 exhibiting companies selected exhibit space at The Packaging Machinery & Materials Exposition of 1958 space selection meeting in New York recently. The PMMI Exposition of 1958 is scheduled for Atlantic City, March 25-28. W. B. Bronander, president of PMMI, says almost 50,000 square feet of exhibit space has been requested by exhibitors. The maximum size of the show will be 60,000 square feet.

Fuller Opens West Coast Plant

Fuller Company has opened a new $1½ million plant in Compton, California, and it is expected to provide improved service at lower cost for West Coast customers of the firm. Light metal fabrication facilities for manufacturing Fuller equipment are in operation at the new plant. The company maintains a large stock of repair parts at the plant, as well as expanded facilities, which will enable the company to provide prompt service for its customers on the West Coast.

We are happy to present . . .

HOOPER-GREEN CO., CHICAGO

as our Distributor in the Important Chicago Area!

A. W. HOLTSCLAW

J. G. GREEN, *Pres.*

W. C. PLATT

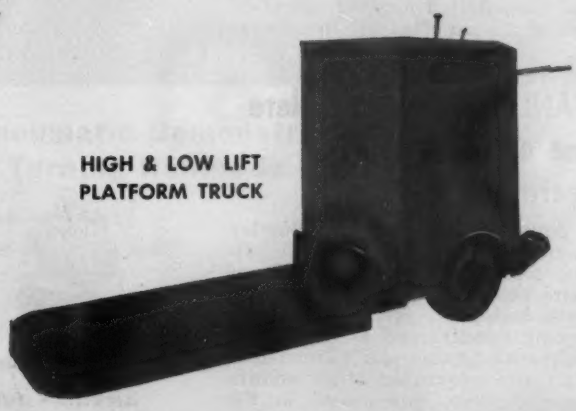
FORK LIFT TRUCK

"WALK ALONG" POWER TRUCK

Hooper-Green Co., Chicago, enjoys an *excellent name* in the materials handling field in Chicago, Indiana, northern Illinois and eastern Iowa. They have the stock, the staff and the know-how to *really* "serve" all the needs of electric truck users. Like the Bowers organization, they have deep faith in electrics as the lowest-cost vehicle for wheeled transportation in the low capacity field of mechanized handling. *Before you buy* any truck, get the story on dependable WRIGHT-HIBBARD, now precision-built by Bowers experts!

WRIGHT-HIBBARD

a dependable name of world-wide fame



HIGH & LOW LIFT PLATFORM TRUCK

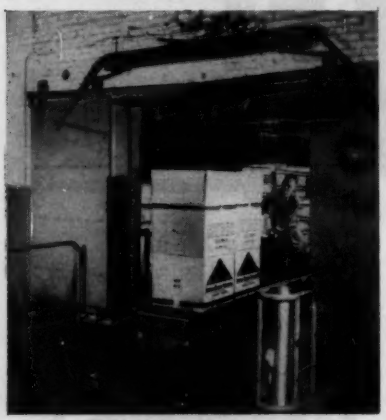
BOWERS INDUSTRIAL *ELECTRIC* TRUCK CO.

***Offices*, Reading, Pa. • *Plant*, Hamburg, Pa.**

Circle No. 30 on Reader Service Card for more information

Complete Plant Automation Includes Door Operation

If automation in today's plants is to fulfill its objective — increased production — then automation must extend to the plant doors or traffic jams will nullify the gains made by greater automatic operation of production equipment. That's why more and more plants are installing Stanley Magic Door Controls to open and close doors *automatically* wherever people or materials must move efficiently in order to keep pace with production output.

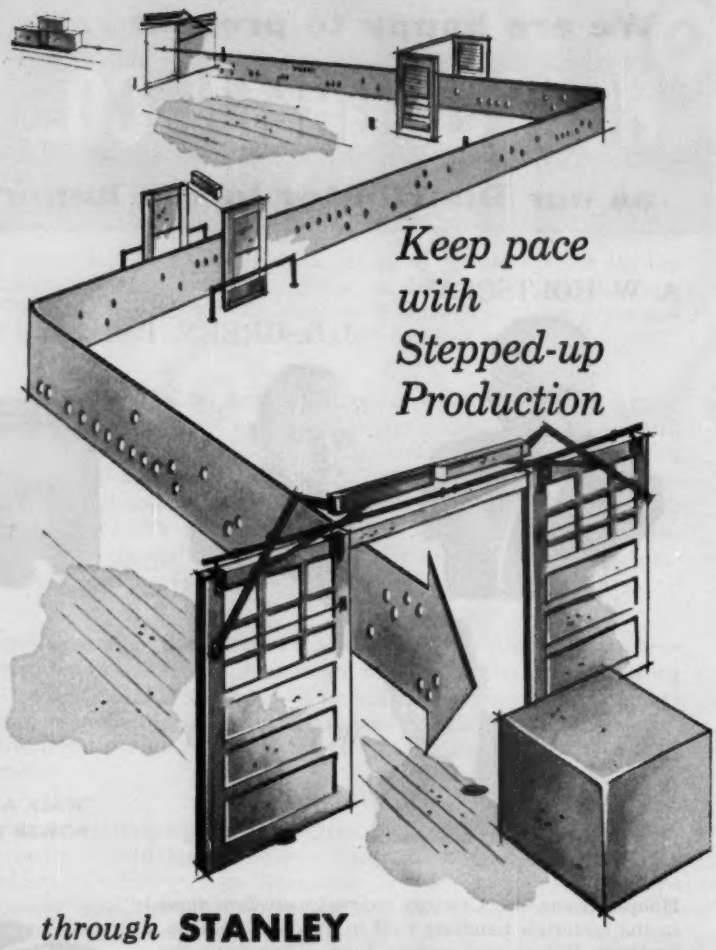


Reduce Operating Costs

When Stanley Automatic Door Controls are located at entrances to Receiving and Shipping Departments, materials move in and out easier and faster. Operators of trucks used to move materials do not leave their trucks to open the doors manually before passing through the opening; nor do they again leave their trucks to close the doors. Such savings in time are reflected in lower operating costs that soon offset the investment in Magic Door installations.

STANLEY Offers Complete Line of Controls, Operators

It pays you to invite the Stanley Magic Door Representative to tour your plant and point out locations where automatic door openings will prove beneficial, saving time, conserving conditioned air, reducing equipment damage and maintenance costs and providing other advantages. Stanley, experienced in the design and manufacture of automatic door controls for a quarter-century, offers the finest line of controls, operators and accessories obtainable. Write for our free folder "Plant Ideas to Make Efficiency Grow" to the address listed in the advertisement on this page.



Keep pace with Stepped-up Production

through **STANLEY automatic door openings**

Open and close plant doors *automatically* with Stanley Magic Door® Controls to keep personnel and materials moving at a pace that will not "bottleneck" production output. Applicable to any new or existing door—or combination of doors—that swing, slide or fold, these controls prevent damage to doors and equipment, conserve conditioned air, cut costs and provide other worthwhile benefits. The nearby Stanley Representative will gladly give you complete information and service.

Write for new folder "Plant Ideas to Make Efficiency Grow" to Magic Door Sales, Stanley Hardware, Division of The Stanley Works, Dept. H, 595 Lake Street, New Britain, Connecticut.

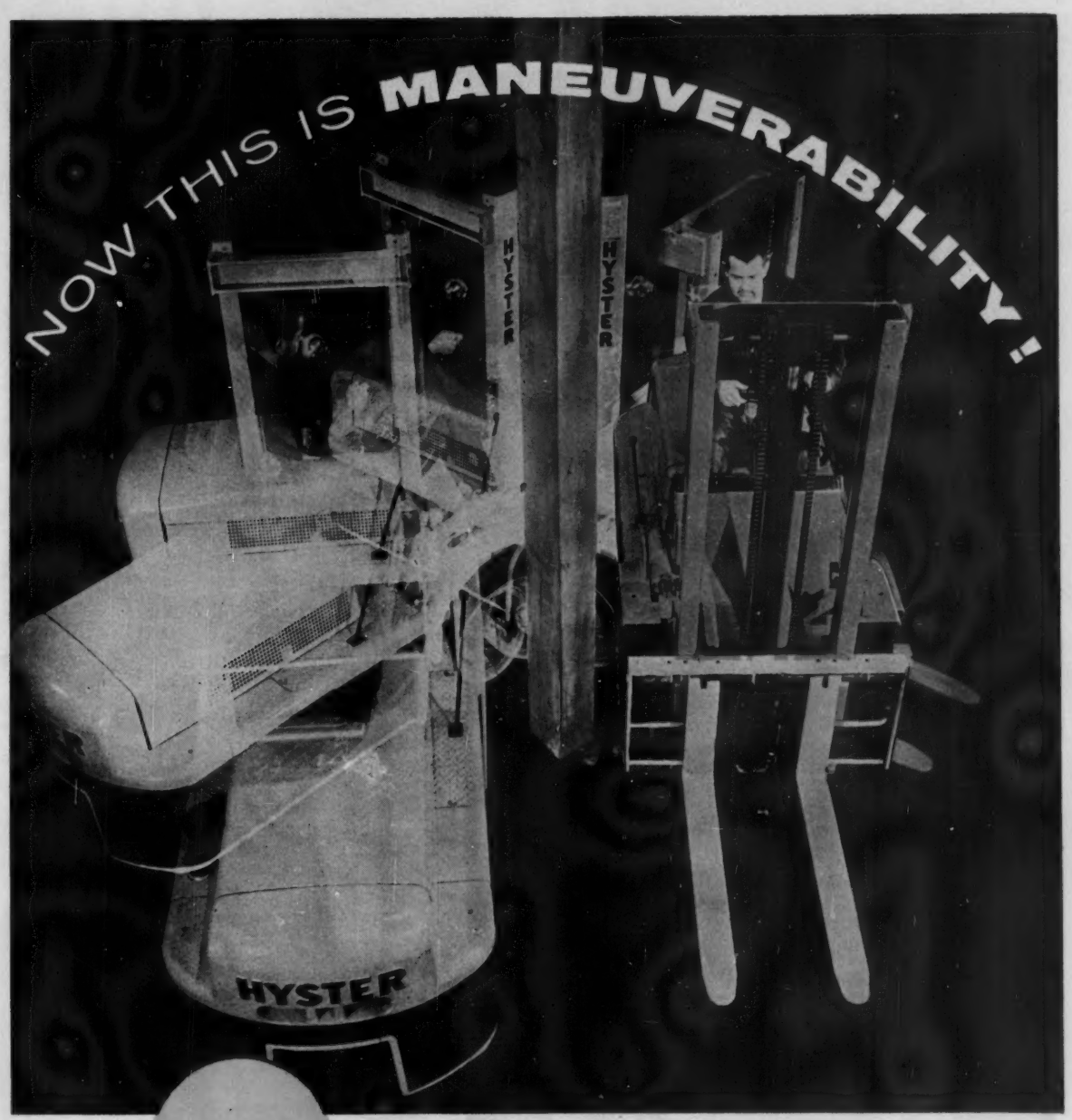
Sales and service representatives in principal cities in the United States and Canada.

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • metal parts • coatings • steel and steel strapping—made in 24 Stanley plants in the United States, Canada, England and Germany

Circle No. 139 on Reader Service Card for more information



HYSTER 4000-lb. Pneumatic Demonstrates Shortest Turning Radius in the Industry

Which makes possible:

NARROWER STACKING AISLE
more useable storage area

GREATER OPERATOR CONFIDENCE
in close quarters

MORE WORK DONE PER DAY
under all conditions indoors and outdoors

Hyster's new line of Pneumatic Tired Trucks in the 3000, 4000 and 5000-lb. capacity range are the most maneuverable in the industry. See for yourself. Ask your Hyster Dealer for a demonstration.

Call your Hyster Dealer. He is in the yellow pages under "Materials Handling" or "Trucks-Industrial"

HYSTER COMPANY

Factories: PORTLAND, OREGON
DANVILLE, ILLINOIS
PEORIA, ILLINOIS
NIJMEGEN, THE NETHERLANDS

Circle No. 82 on Reader Service Card for more information

CALENDAR OF EVENTS

September 9

Hoist Manufacturers Association
Regular Meeting
Detroit, Michigan

September 9-13

The Instrument Society of America
12th Annual Instrument-Automation Conference & Exhibit
Cleveland Auditorium
Cleveland, Ohio

September 30-October 4

Canadian National Material Handling Show and Conference
Show Mart
Montreal, P. Q.

October 1-3

Third Joint Military-Industry Packaging and Material Handling Symposium
Fort Lee, Virginia

October 7-9

Illinois Institute of Technology—13th Annual National Electronics Conference
Hotel Sherman
Chicago, Illinois

October 17-18

Fibre Box Association
Fibre Box Competition
Washington, D. C.

October 28-31

National Industrial Packaging & Handling Exposition of 1957
Convention Hall
Atlantic City, New Jersey

November 4-7

National Retail Lumber Dealers Association
Building Products Exposition
Philadelphia, Pennsylvania

November 6-8

Packaging Association of Canada
Canadian National Packaging Exposition
Toronto, Canada

News About SIPMHE

New Officers Have a Challenge To Meet

By John W. McReynolds
President, SIPMHE

Summer is half gone, and for many of us the annual respite of a few weeks diversion and relaxation has already been written off as a vacation that passed too quickly. Back to the alarm clock, the commuting travel, the hurry, the pressure, the daily vexations and even the "old groove".

Maybe vacation was the remedy needed to awaken a reassurance of our own abilities and honesty to one's self. Maybe the mantle of procrastination has been scrapped and our ulcers cured. These are questions which will answer themselves as we progress through another year of hard work.

Many new presidents of chapters are now starting their terms of office, following the footsteps of successful accomplishments attained by their predecessors. To follow headliners is not easy. It is the challenge that comes so rarely to many of us—a challenge that is not met in solo performance, but with the interest and initiative of every chapter member.

To the newly elected presidents and officers, we of National salute you. Your calibre spells success in everything we undertake.

Our annual national Industrial Packaging and Material Handling Exposition in Atlantic City October 28-31 is a service to commerce and industry at large—to both manufacturers and users. Here, in the only trade show of its kind, there is additional emphasis. The development of the SIPMHE Short Course was a spark that ignited college interest in packaging and material handling education. Then there is the internationally famed National Championship Competition. It's a terrific project—combining all the elements of technical skill, drama, suspense and sporting interest. It's a real chance to brush up on your *know-how* by checking "what's new and how to do it!"

Select Show Space

Representatives of 41 exhibiting companies met in Pittsburgh recently to select space in The National Industrial Packaging and Handling Exposition of 1957. The SIPMHE-sponsored show will be held in Atlantic City's Convention Hall, October 28 through 31.

In addition to manufacturers' exhibits, the Exposition will feature display of entries in the National Championship Packaging and Material Handling Competition. It also includes the SIPMHE Short Course, this year co-sponsored by Temple University.

Short Course Has Wide Subject Range

H. C. Rountree

The Temple University-SIPMHE Short Course for 1957 will include topics ranging from basic principles of package engineering to management coordination, communications and equipment financing, according to Harry C. Rountree, chairman of the course. Rountree is director of Temple's Bureau of Industrial and Special Services.

The Short Course will be held in Atlantic City October 28-31, during the National Industrial Packaging and Handling Exposition of 1957. Its theme will be "Brainstorming for Profits—practical approaches to better packaging, handling, transportation and distribution."

Subjects will cover four major fields: packaging, handling and transportation, warehousing and space utilization, and management. In addition, the course will offer sessions in brainstorming conducted by Temple University staff specialists.

Short Course sessions will be from 9 AM to 1:15 PM on Oct. 28, 29 and 30. A certificate will be awarded to all persons who complete the full course.

San Jose, Calif.—The 22nd chapter of SIPMHE has been formed here. Known as the Central California Division, it serves the area of San Jose, Palo Alto, Merced, Modesto, San Mateo and Santa Cruz. Officers of the newly formed group are: **R. A. Koller,** president; **F. J. Hannum,** secretary; **Grover Hoskins,** program chairman; and **N. S. Conrad,** membership chairman.

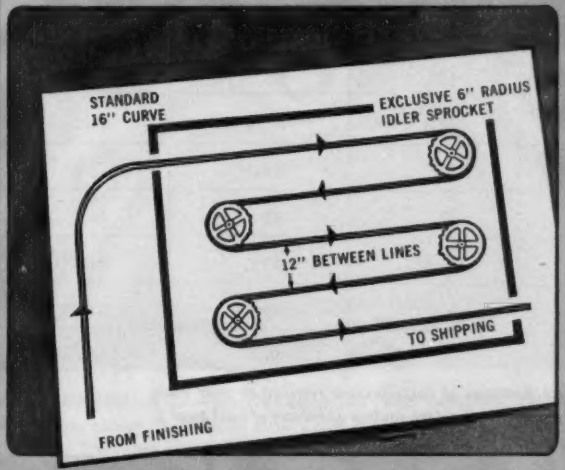
Pittsburgh, Pa.—Election of new officers and charter presentation ceremonies highlighted a recent meeting of the newly organized Pittsburgh Chapter. **John Mount,** executive vice president of SIPMHE, presented the charter. The new chapter officers are: **Francis C. Aland,** president; **J. Richard,** vice president; **P. D. Majesky,** secretary; and **B. Chizek,** treasurer.

CHAINVEYOR

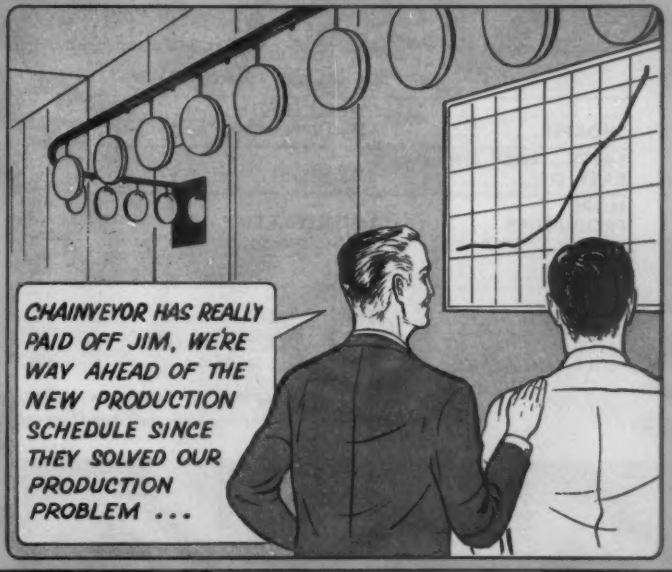
Tough production schedules solved

This company faced a critical conversion problem. To operate profitably it was necessary to increase baking time three-fold with present plant facilities.

Chainveyor modernizes materials handling while conserving valuable floor space. Small radius turns enable Chainveyor to make quick dips to machinery, run in and out of tanks and up over aisles in a minimum of space. Parts are up and out of the way in live storage while moving from process to process.



Solution: Chainveyor's exclusive 6" radius Idler Sprocket made possible five parallel lines 12" apart in the existing oven, thus *tripling baking time*. The complete system moved parts from fabrication through finishing and baking *with no manual handling!*



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PLANNING FOLDER
Mail this coupon today!

YOU RECEIVE:
- A HANDY FILE FOLDER for materials handling information.
- SPECIAL ILLUSTRATED CATALOG with proven applications, details and representative users.
- DIAGRAM illustrating a typical Chainveyor layout showing component parts.
- PLANNING GRID SHEETS for preliminary layouts.

CHAINVEYOR CORPORATION
5618 E. Washington Blvd., Los Angeles, Calif.

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QUALITY OVERHEAD CONVEYOR SYSTEMS

CHAINVEYOR CORPORATION

DISTRIBUTORS IN ALL PRINCIPAL CITIES
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Automatic DOCKER

THE LIFT TRUCK THAT WORKS WHERE OTHERS CAN'T

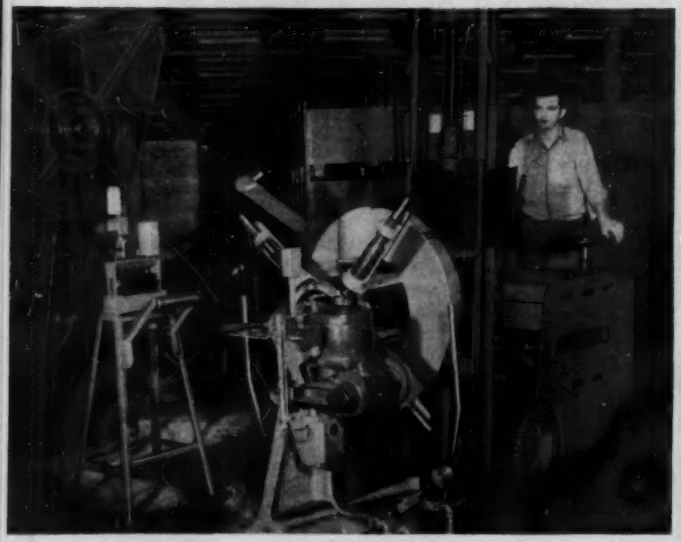
Shortest in its class... unmatched for easy maneuvering ...and for efficient low-cost operation

Illustrated are only a few examples of the DOCKER'S versatility. This extra-compact, more maneuverable truck offers more advantages than any other of its type for materials handling in any industry. It is especially desirable where space is limited ...works with ease inside trailers, freight cars and in aisles too narrow for other similar trucks.

What's more, direct comparison shows clearly how definitely superior the DOCKER really is. Here are the figures:

	DOCKER	TRUCK A	TRUCK B	TRUCK C
2000 LBS. WITH LOAD LENGTH OF ▶	48"	30"	48"	30"
SHORTER.....OVERALL LENGTH LESS FORK	53⅞"	65⅞"	65½"	64"
SAFER...EASY ON EASY OFF.....STEP HEIGHT	7"	13"	13¾"	13⅞"
MORE PRODUCTIVE.....LIFT SPEED F.P.M.	65	55	45	45
MORE VERSATILE.....GRADE CLEARANCE	45%	43.4%	45%	35%
MORE MANEUVERABLE.....TURNING RADIUS	56"	59"	64"	57"
MAXIMUM HEAT PROTECTION.....CLASS H, SILICONE INSULATED MOTORS. ALL MODELS	Yes	No	No	No

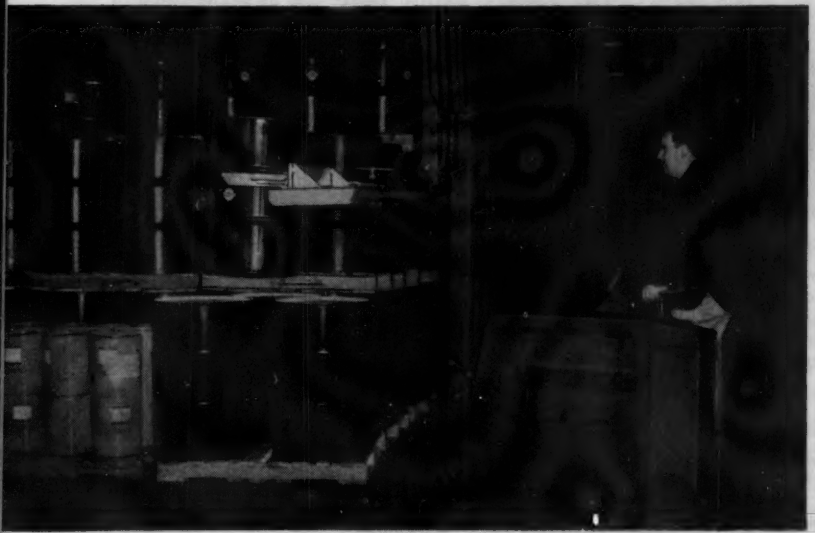
Send today for complete information including case histories of installations similar to your own where Dockers are cutting materials handling costs to a minimum *(see coupon at bottom of next page).*



FABRICATED METALS—DOCKER is placing steel coil on an automatic feed device for a punch press in the new Briggs and Stratton Plant, Milwaukee. Throughout this plant, which is a model for plant planners, DOCKERS keep materials moving from receiving through production to shipping.

FOOD AND COLD STORAGE—Operating in temperatures ranging from plus 38° to minus 10° F. dependable Automatic DOCKERS working around the clock speed handling of perishable foods for Inland Storage Company.

BULK CHEMICALS—DOCKER equipped with revolving carriage fork which takes about 2 minutes to load 2200 lbs. of raw chemicals into bin. The Climalene Company has established a new system of handling dry chemicals in bulk, thereby avoiding necessity of building additional facilities.



PHARMACEUTICALS AND CHEMICALS—Illustrated is DOCKER with removable drum attachment unloading a trailer load of Citroflex® plasticizers at warehouse of Chas. Pfizer & Co., Inc. 40 drums of nearly 600 lbs. each are unloaded in only 40 minutes.

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PAPER—Marcal Paper Company slashes loading time per boxcar from 12 man-hours to 1½ man-hours. DOCKER illustrated is equipped with rotating paper roll clamp for unloading and tiering 800 lb. paper rolls.

TOOLS AND METAL SPECIALTIES—Nye Tool Company uses the DOCKER and one man part time for a loading job that formerly took several men away from other work.

AUTOMATIC TRANSPORTATION COMPANY

Division of The Yale & Towne Manufacturing Company

—MAIL THIS COUPON TODAY—

Automatic Transportation Company
Dept. M-7, 141 West 87th Street, Chicago 20, Ill.

Please rush me complete specifications for Automatic DOCKER ... also FREE COST-CUTTER Booklet that shows how to chart and analyze your own materials handling needs.

Firm Name..... *by*.....

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News About AMHS

Region IV Veep Named

Moroney

AMHS officials announced recently that William P. Moroney, Jr. had been elected Region IV vice president. Moroney is senior engineer in the material handling department at the Delco-Remy Division of General Motors Corp. Region IV of the society covers Michigan, Indiana, Kentucky and portions of Ohio and Ontario.

Moroney's duties will include coordinating the national program of the society within the region, the establishment of regional meetings and seminars in cities where the society maintains active chapters, assisting educational institutions in the area, preparing and conducting courses dealing with the theory and practice of material handling.

Active in the society since its founding, Moroney is a past vice president in the state organization, and served as president of the Indianapolis chapter for 1956-57.

Pittsburgh, Pa.—Richard C. Mottu has been elected chairman of the Pittsburgh Chapter. Other officers for 1957-58 are: **Bud Eck,** vice chairman; **Arthur H. Withrow,** treasurer; **Robert L. Kegg,** secretary; and **D. Maxwell Seely,** national director.

Hamilton, Ont.—New officers of the Hamilton Chapter of AMHS are as follows: **Richard E. McLaren,** president; **Walter W. Pace,** vice president; **J. Lewis Eckebreecht,** 2nd vice president; and **Warren A. Ryckman,** secretary-treasurer. Their election was announced at a recent meeting, at which the members heard an address by **John F. Lavis** on the subject, "Mobile Telephone Equipment."

Denver, Col.—Officers for the ensuing year have been announced by the Denver Chapter of AMHS. **Harry Newmann** was elected president of the group. **Carl R. Nelson** is vice president. **John Fox** becomes treasurer, and **Sheldon Streater** is secretary. National director of the group is **Vern Bybee.**

Milwaukee, Wis.—New officers of the Wisconsin Chapter of AMHS were announced at a recent meeting. President of the group is **Chester E. Anderson.** Other officers are: **Allen W. Wolf,** executive vice president; **Herbert M. Jones,** vice president; **Alfred O. Meyer,** secretary; and **Donald L. Wade,** treasurer. **R. Frank Weber** is national director of the chapter.

New Officers of Wisconsin Chapter. Seated is Chester E. Anderson, president, Standing (l to r) are Herbert M. Jones, Alfred O. Meyer, Donald L. Wade and Allen N. Wolf.

Montreal, P. Q.—Introduction of new officers headed the agenda at the annual meeting held recently by the Montreal Chapter. **Jack L. Smith** was named president of the group. 1st vice president is **W. L. Brown. A. L. Johansson** is 2nd vice president. **Irving Feldman** and **J. Keating** become secretary and treasurer, respectively.

J. L. Smith (left), new president of Montreal Chapter of AMHS, is congratulated as he accepts gavel from S. Kom, outgoing president.

Los Angeles, Calif.—The second annual Western Championship Fork Truck Rodeo was held at Cheli Air Force Depot recently. The event was sponsored by the Los Angeles chapter of AMHS, and attracted 89 entries from industry and military bases. Clark Enock, Robert Gair Division of Continental Can Company, won first prize. He was awarded a trophy for himself and a plaque for his company. Designed to encourage safety at the operator level, the competition is gaining the backing of safety engineers and insurance organizations.

Winning driver Clark Enock (left) poses with W. G. Goninan, past AMHS chapter president in Los Angeles.

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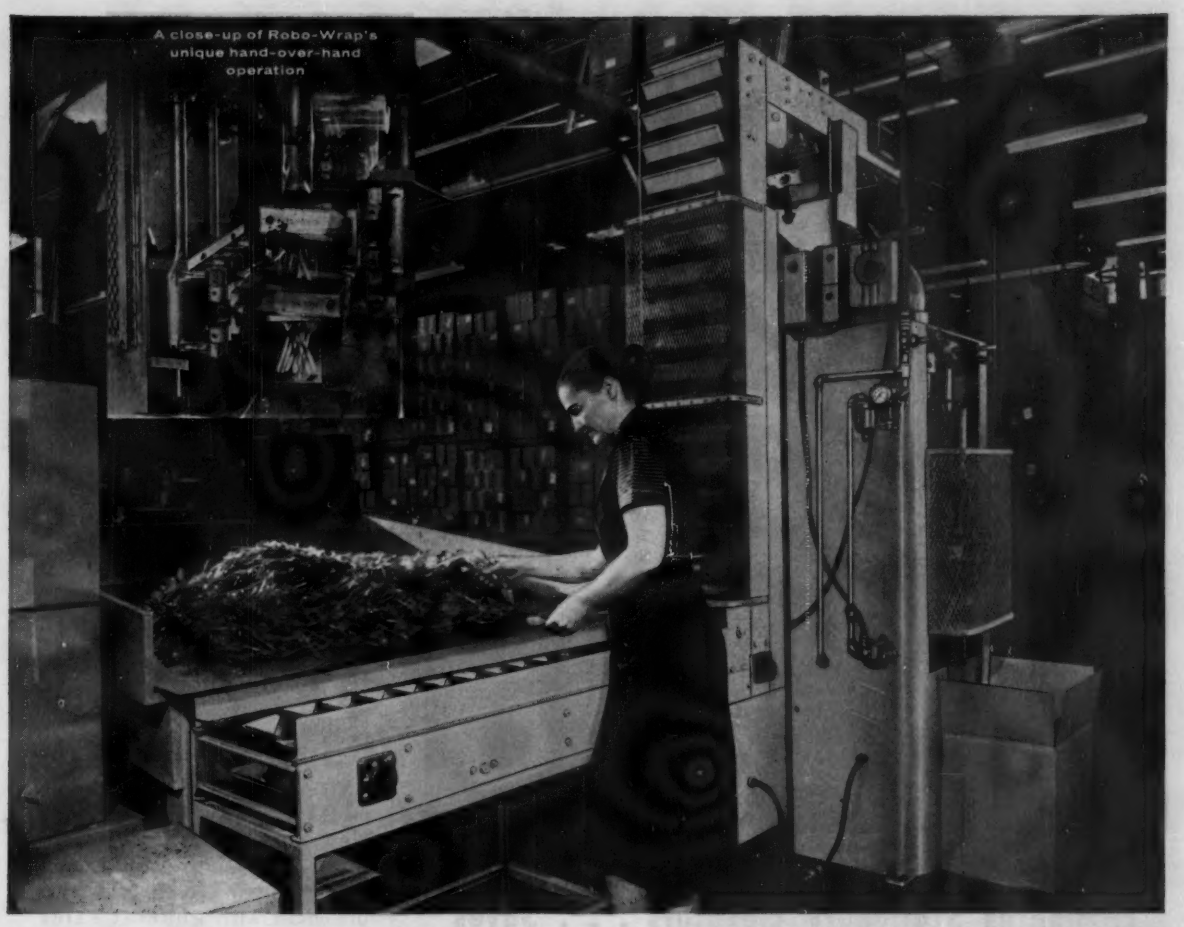
City & Zone..... State.....



PACKAGING FLEXIBILITY PAYS OFF AT FEDERAL

A Lynch Robo-Lift elevating conveyor and a Lynch Robo-Wrap automatic unit packager combine to reach new production highs, lower packaging costs for the Federal Tool Corp., Chicago. Requiring but one operator, the integrated team produces an average of 45 packages a minute ... has the flexibility needed for quick changeover from one size to another. Manually fed, Robo-Lift takes the product "up 'n' over" for fast Robo-Wrap package forming, filling and sealing—all in one continuous action. The hard-working, Robo-Lift—Robo-Wrap team operates three shifts a day, six days a week... has logged just nine hours downtime in three months! Learn how Robo-Lift, Robo-Wrap packaging can serve you ... bringing lower maintenance and operating costs, increased output. Used individually, Robo-Wrap and Robo-Lift can be integrated with your existing equipment. Write for full details. Address Department FL.

LYNCH ROBO
CORPORATION
A Division of
LYNCH CORPORATION
Anderson, Indiana

FEDERAL TOOL ROBO-WRAPS PLASTIC ITEMS OF VARIOUS SIZES, SHAPES

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MEN IN THE NEWS . . .

(*Continued from page* 18)

years, has been elected to the board of directors, according to **Ernest G. Swigert,** president. Washburn will be active in the company's management, especially in the area of new products.


D. Mack

At **American Liquid Gas Corp** . . . Appointment of **Don Mack** as advertising manager has been announced by **Wm. T. Hagny** executive vice-president. His appointment follows six years association with the company as account executive for the company's advertising agency.

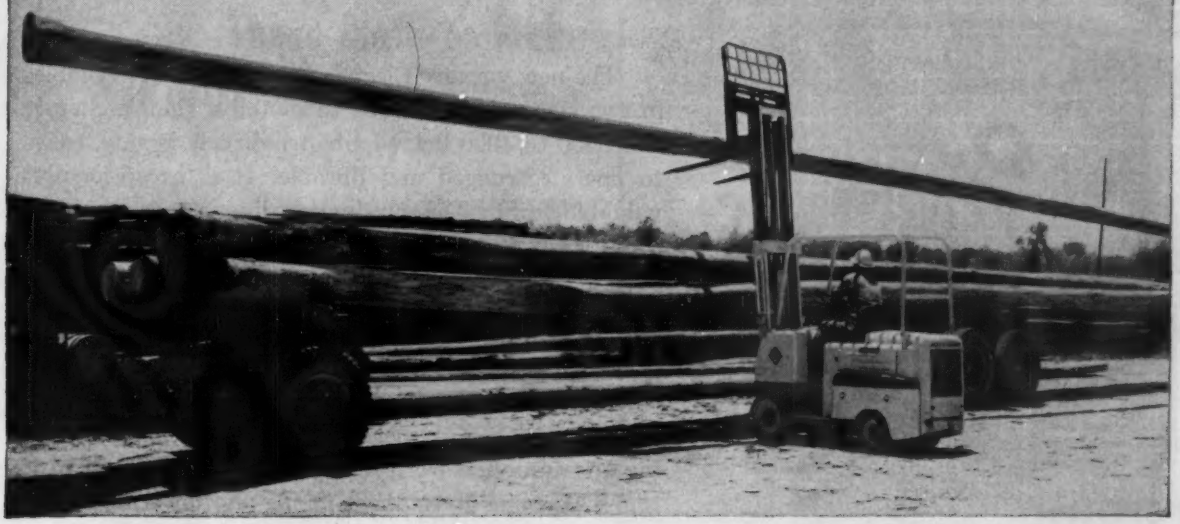
At **Chase Bag Company** . . . two company officers and a New York banker were elected to the board of directors. They are: **William N. Brock,** vice president and general sales manager; **Leland S. Brown,** vice president of The First National City Bank of New York; **Francis H. Ludington, Jr.,** vice president in charge of production and engineering.


B. R. Teree

At **Greer Hydraulics, Inc.** . . **Edward M. Greer,** president, has announced the election of **Baboo Ram (Bob) Teree** to the post of vice-president in charge of engineering and manufacturing. Teree was formerly chief engineer and manager of engineering and manufacturing of the company. Prior to joining Greer he was chief engineer of the Weatherhead Co. aircraft division and special products division and director of engineering of the New York Air Brake Company's Hydraulic division.

This load is TOUGH on masts

The slightest tilt of this type of load on uneven ground places unusual side strain on the mast assembly. But this Allis-Chalmers mast takes it in stride. Its rigid, all-welded channel is designed to resist deflection. The entire mast assembly is precision-built, bearings are pressure-lubricated.



WIDE RANGE OF JOBS OFFER TOUGH TESTS FOR ALLIS-CHALMERS FORK TRUCK

Handles Everything from Pallet Loads to Piling for Freeport Sulphur Co.

Material for five Freeport Sulphur plants is stored at Harvey, La., and shipped out as needed by barge and LCT. An Allis-Chalmers 6,000-lb fork lift truck handles this material into and out of storage as well as on the dock.

The demand on this truck is constant and the types of loads almost limitless, yet every day it passes many severe tests of durability and versatility.

☆ ☆ ☆

Write for free catalog on the complete Allis-Chalmers fork truck line or see your nearby dealer.

ALLIS-CHALMERS, MATERIAL HANDLING DEPT., BUDA DIVISION
MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

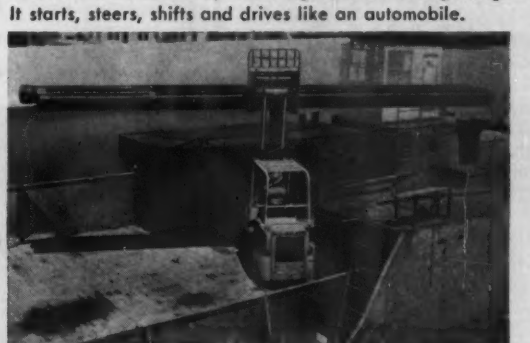
BH-9

This ramp is TOUGH on a clutch

Repeated trips up and down the ramp could wreck ordinary clutches. But the torque converter drive on this Allis-Chalmers fork truck eliminates clutch trouble, saves excessive engine wear and holds down fuel consumption.

This job is TOUGH on nerves

Handling awkward loads in cramped quarters flanked by sheer drops calls for a skillful operator and a safe, responsive truck. Maneuvering an Allis-Chalmers is almost second nature to the operator right from the beginning. It starts, steers, shifts and drives like an automobile.



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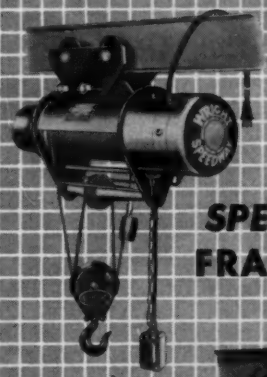
WRIGHT Electric Hoists

NEW ELECTRIC CHAIN HOIST

- The new WRIGHT Electric Chain Hoist is available in two size capacities: 300 to 2000 lbs. (single chain) and 3000 to 4000 lbs. (double chain). It is safe, easy to operate, rugged and durable. It is exceptionally valuable for use on production lines, over machine tools or any shop location where space is at a premium.

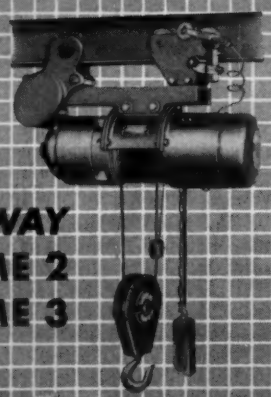
2-SPEED SPEEDWAY FRAME 1

- WRIGHT now offers a *Speedway* Two-Speed Hoist in the Frame 1 size. It permits precise, gentle positioning of production work in capacities from ¼ ton to 1 ton. This hoist gives a fast lifting and lowering speed —and a slow speed (¼ the rate of the fast speed) by the use of 1800/450 RPM motors.



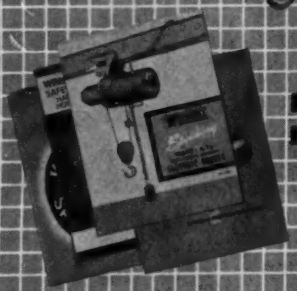
SPEEDWAY FRAME 1½

- WRIGHT *Speedway* Electric Hoists are built to meet the many and varied demands of modern high-speed production. Many design improvements minimize maintenance costs and down-time. The Frame 1½ Hoist will handle loads of from 1½ to 2 tons. The Type L-1½ shown is 4-part reeved and intended for relatively slow lifting speeds.



SPEEDWAY FRAME 2 FRAME 3

- WRIGHT Frame 2 *Speedway* Electric Hoists are capable of handling loads from 1½ to 6 tons. The Frame 3—from 1½ to 10 tons. WRIGHT *Speedway* Hoists are available with single or variable speeds and with a wide variety of mounting arrangements to meet specific requirements.



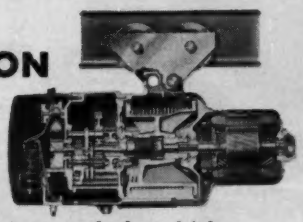
FOR COMPLETE INFORMATION

Ask for the following booklets for complete information on WRIGHT Hoists and Crane components: Speedway Hoists (Frame 1-1½) Booklet DH-133B, (Frame 2 and 3) Catalog E-55B • Motor Driven Cranes—Underhung, Single Bridge—Bulletin #227; Top Running Cranes—Bulletin DH-448 or DH-449 • Crane Drive Units—Booklet DH-431A • Hand Traveling Cranes—Bulletins DH-468 and DH-348B.

for Lowest Final Cost

These features make WRIGHT Speedway Hoists your best buy for—

MORE PRODUCTION

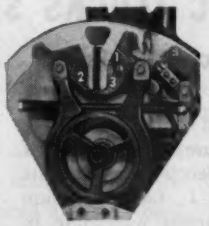


Fine balance and heavy duty design make possible the continuous handling of tough jobs on any duty cycle for which a 30-minute NEMA motor is satisfactory. All gears and pinions are alloy steel, heat-treated. Their ductile core supplies shock resistance to most severe service stresses. Anti-friction bearings throughout.

LONGER LIFE

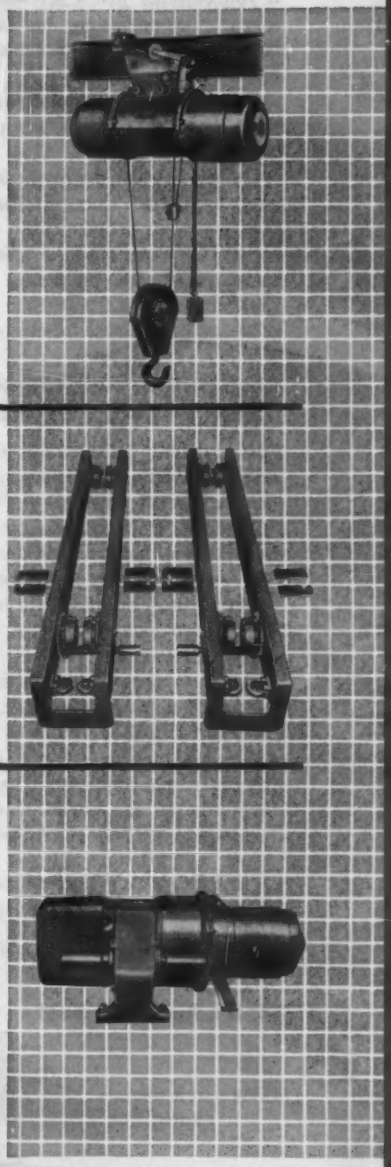
Strength of gear teeth of WRIGHT Frame 2 and 3 Speedway hoists has been doubled by a change in contour and grain structure of the metal. Internal gear ring with heavy flanged cross section is bolted to drum at six points and provides extreme resistance to distortion.

EASIER MAINTENANCE



There is nothing to adjust but the cam to keep brake in perfect adjustment. When excessive load drift occurs... remove the screw shown at Position 1, swing the cam until Position 2 is in line. Replace the screw. Position 3 is provided for the final third of brake lining wear. Brake springs and solenoid never need adjustment.

Better performance at lower cost by using WRIGHT units for local-built cranes



SPEEDWAY ELECTRIC HOIST

Available in Frame 1, 1½, 2 and 3 sizes with capacities from ¼ ton to 10 tons.

END TRUCKS

For motor-driven cranes and hand traveling cranes—both top running and under-hung types. Timken bearings throughout. Wide range of capacities.

CRANE DRIVE UNIT

For crane and double-beam trolley propulsion. Electric motor transmits power through fluid drive to well proportioned gear reduction. Units are equipped with WRIGHT designed solenoid "drag" brake. Size 1—with motors to 2 HP. Size 2—with 3 to 7½ HP motors.

Wright Hoist Division
AMERICAN CHAIN & CABLE

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

ACCO

(Advertisement)

TIPS ON TRUCKS

Electric trucks give clean, quiet, safe operation

In critical warehousing operations, certainly, the arguments in favor of "going electric" are numerous. Even if you consider just a few—say cleanliness, quiet operation, and safety, the balance is way in favor of the battery-operated truck.

Clean? No worry about fumes, objectionable odors, oil drip, when you run electrics.

Quiet? You can hardly hear electrics glide by. Here's smooth, silent power . . . no noise problems for workers.

Safety? Consider the absence of carbon monoxide, minimum fire and explosion hazards.

Makes quite a case for electrics!

Look to the power source . . . the extra-capacity battery

Just as there is a big difference between types of trucks, so is there a big difference between batteries.

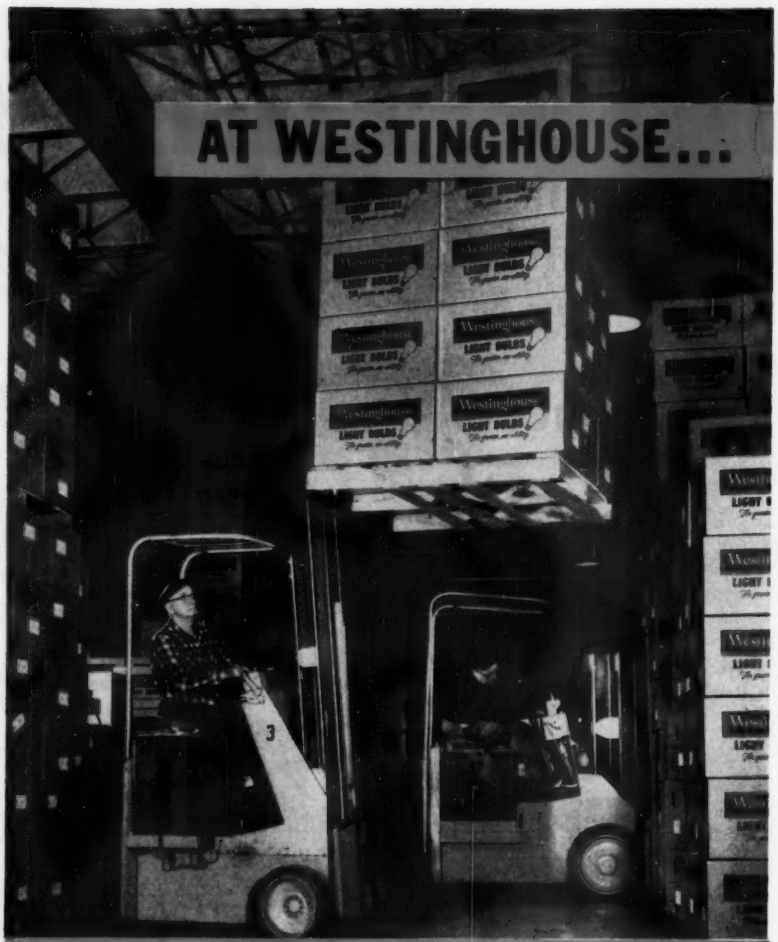
Wherever electric trucks are powered by modern, advanced-design C & D *Slyver-Clad* batteries, companies are able to get the most out of their trucks. Here is the best power package available today. Plates are longer, heavier, designed so as to eliminate "shedding"—thus prolonging battery life. In addition, all C&D *Slyver-Clad* batteries are now equipped with new Hi-Impac cell covers and containers. Truck downtime due to cell cover or container breakage is virtually eliminated.

(It will pay you to check on electric trucks powered by C & D batteries. Just send for the literature offered in advertisement at right.)

Match best with best

...the best in trucks—electric

...with the best in batteries—C & D



Modern 260,000 square-foot Westinghouse light bulb warehouse, Trenton, N.J.

Move a million bulbs a day; electric trucks silent, safe, sure

Trucks all electric . . . powered by C & D

"You can be *sure* . . . if it's Westinghouse." And you can be sure Westinghouse is geared for peak-efficiency operation in its modern Trenton, N.J., Lamp Division Shipping Centre—largest warehouse in the country for the storage of electric light bulbs.

Moving *in* and moving *out* a *million* light bulbs a day at this strategic distribution center calls for a large fleet of fork-lift trucks. Trucks are efficient, clean, quiet. They're all *battery-electric* . . . have been for the past 10 years. And powered by C&D *Slyver-Clad*® batteries, the trucks not only run a full shift without recharging—they often work 10 to 11 hours at a stretch—thanks to C&D's extra capacity.

Westinghouse, too, uses C & D!

It pays to see why "C & D is a better battery buy"

See how C & D's advanced principles of design and extra battery capacity cut material handling costs . . . give your trucks a power boost.

Write for descriptive bulletins.

C&D

BATTERIES, INC.

of Conshohocken, Pa.

SINCE 1906

Sales and service offices in principal cities from coast to coast

Circle No. 36 on Reader Service Card for more information

Millions of tons of raw material reserves must be stored to meet today's fluctuating production demands. To insure an uninterrupted supply of these bulk materials industry depends on . . .

Giant Hands For STOCKPILING

By EVERETT L. SPARKS
Associate Editor, FLOW

Bulk stockpiling is the answer to supply problems in modern industry. The reason is obvious. Production of electric power, steel, and all other basic commodities must be immune to seasonal or man-made interruptions in mining and transportation. In other words, stockpiling fills the gap between constant demand and varying supply rates.

Generally speaking, there are three basic methods of stockpiling: They are: with mobile units (crawler or tire mounted); with conveyor systems; with bridges spanning the stockpile.

There are no hard-and-fast rules for using one system in preference to another, or for combining any two or three systems. There are, however, certain factors which must be given careful consideration if you are to achieve the lowest possible handling cost.

On the following pages you will find a discussion of the materials to be handled, the three basic types of equipment, and examples of excellent handling systems. Look them over—they may help solve your stockpiling problems.

Selecting The Stockpiling System

Before you select a bulk material stockpiling system, there are five principle factors to consider. They are: (1) the nature of the material to be handled; (2) the quantity to be stored and the turnover rate; (3) the estimated life of the system; (4) the available storage space; (5) the climate.

First consideration must be the nature of the material to be handled. It affects the planning and design of any stockpiling system. Weights, angles of repose and operating angles of the various bulk materials are important factors if the best method and type of equipment are to be used in each individual application.

WHAT KIND OF MATERIAL?

For instance, ore is very heavy and abrasive, and it is not too well suited for bulldozing or for handling by mobile carrying equipment. However, a large tonnage can be stored in a relatively small space and to almost any height.

On the other hand, coal is about one-third the weight of iron ore. It requires proportionately larger storage area and must be stocked so that spontaneous combustion is avoided. Requirements to avoid spontaneous combustion vary considerably with the type of coal. But, generally, compaction by rolling will prevent firing. This holds true if the height exceeds about 30 feet or the time in storage is to exceed 60 to 90 days. Bulldozing or handling coal by mobile equipment is common. However, reclaiming coal by tunnel conveyor is difficult, if not impossible, because the compacted coal will not flow readily into the opening above the tunnel.

Bauxite, another material which is stockpiled in large quantities, requires covered storage. Enclosed or tunnel conveyor systems are used almost exclusively for protection from wind and rain.

HOW MUCH MATERIAL?

The quantity of material to be stored depends upon the amount of surge capacity required. This varies widely, and may or may not be a deciding factor in your choice of the type of equipment to be used.

The turnover rate, which is the rate at which material is to be stocked and reclaimed, has a great bearing on the kind of equipment you choose. In the case of a stockpile where the rate into the stockpile is approximately the same as the rate of reclaiming, the handling equipment can be of a relatively lower capacity.

WHERE ARE YOU STOCKPILING?

In cases where all conditions might indicate either a conveyor system or a bridge for stocking and reclaiming, climate alone may be a deciding factor. Tunnel conveyor reclaiming systems are handicapped in northern climates because they depend upon a free flow of the stocked material through openings in the roof of the tunnel. If freezing prevents this flow, the system bogs down. As the above example indicates, climate alone can break or make any stockpiling system.

On the opposite page is a chart listing the weights, angles of repose and operating angles of various bulk materials. Remember, these are important factors, and they must be considered when stockpiling.

WEIGHTS, ANGLES OF REPOSE AND OPERATING ANGLES OF VARIOUS MATERIALS

(A:Weight, lbs/cu. ft., B:Angle of Repose, C:Maximum Operating Angle)

MATERIAL	A	B	C
Alumina, sized or briquette	65	22°	10°
Aluminum Hydrate, ground	13½	34°	24°
Aluminum Sulphate, granular	54	32°	15°
Ash, black, ground	105	27°	15°
Ashy, fly, powdered	45	42°	30°
Ashes, wet	47	50°	38°
Ashes, dry	38	40°	27°
Bauxite, ground dried	68	35°	23°
Bauxite, mine run	85	31°	17°
Beans, soy-cake	45	32°	18°
Beans, soy-meal	40	27°	14°
Beans, soy-crushed	34	35°	22°
Beans, soy-whole	47	22°	7°
Beans, soy-split	44	25°	10°
Buckwheat	34½	25°	13°
Barley	39	48°	35°
Carbon, coke, crushed, sized	30	28°	13°
Cement, clinker	88	33°	20°
Cement, Portland	95	39°	28°
Charcoal, Wood, Pulp granular	26½	35°	25°
Chips, Wood	22	36°	25°
Chromide Acid, flake	75	25°	13°
Cinders, (Coal, Ashes & Clinkers)	42	35°	23°
Cinders, Blast furnace	57	35°	23°
Clay, dry in lump loose		35°	21°
Clay, Blended for tile 11% moist	45	45°	31°
Clay, ground		35°	22°
Clay, gray, granular		35°	20°
Coal, Anthracite, broken, loose	54	22°	8°
Coal, Anthracite, Chestnut	46	22°	8°
Coal, Bituminus, Minus ¼", dry	42	29°	15°
Coal, Bituminus, Minus ¼", wet	50	40°	25°
Coal, Bituminus, Minus ¼" very wet	55	33°	20°
Coal, Bituminus sized, wet or dry	45	27°	14°
Copra, medium size pieces	33	20°	9°
Copra, meal, ground	40	39°	25°
Copra, expeller cake ground	32	30°	16°
Copra, expeller cake chopped	29	20°	8°
Copper Sulphate, ground	75	31°	17°
Clover seed (60 lbs. per bu.)	48	28°	15°
Cocoanut Shredded	25	27°	15°
Coffee Beans, Green	42	25°	10°
Coffee, Steel Cut	28	23°	10°
Corn Shelled (56 lbs. per bu.)	45	21°	7°
Cornmeal (50 lbs. per bu.)	40	35°	22°
Cotton Seed	25	29°	19°
Cotton Seed Meal	33	35°	22°
Earth, Fullers, Raw	42	35°	21°
Earth, Common Loam dry loose	76	35°	20°
Feldspar, crushed	100	32°	17°
Flax Seed (56 lbs. per bu.)	45	21°	8°
Glue (Pellet)	45	25°	11°
Gravel, sharp		40°	27°
Gravel, round		30°	15°
Green stone, trap, loose piles	107	35°	21°
Gypsum	142	45°	33°
Gypsum in regular lumps	82	30°	15°
Gypsum ground	56	40°	27°
Iron Oxide Pigment	25	40°	27°
Iron Ore Limonite	237	40°	28°
Iron Ore soft		35°	21°
Kaolin, green crushed	64	35°	19°
Kaolin, pulverized	22	45°	32°
Lead, #70 red	230	40°	31°
Lead, Silicate granulated	230	30°	15°
Lead, Sulphate, basic pulverized	184	45°	32°
Lime, Briquette	60	26°	15°
Lime, burned pebble (sized)	53	30°	17°
Lime, burned pulverized	27	43°	29°
Lime, fine (spent dry carbide)	45	40°	26°
Lime, Mason	17	40°	27°
Lime, Hydrated		42°	30°
Limestone, pulverized	85	47°	34°
Limestone, mixed sized	105	35°	21°
Limestone, coarse, sized	98	25°	12°
Linseed Meal	27	34°	20°
Linseed, rolled	25	34°	20°
Mica, ground	13½	36°	23°
Molybdenumite Ore, powdered	107	40°	25°
Manganese	460	39°	24°
Nitrate of Soda	68	24°	10°
Oats, (32 lbs. per bu.)	26	21°	8°
Phosphate, Dicalcium, granular	60	30°	17°
Phosphate, Super, ground	51	45°	30°
Phosphate, Tri-Sodium granular	60	26°	13°
Phosphate, Tri-Sodium pulverized	50	40°	29°
Phosphate, Florida	93	27°	14°
Phithalic Anhydride, flakey	42	24°	10°
Pitch, flake	42	27°	13°
Rice	50	20°	8°
Rock, Phosphate, pulverized	60	49°	28°
Rubber, scrap (ground)	23	35°	22°
Rye (56 lbs. per bu)	45	32°	18°
Salt, cake	76	36°	21°
Salt, granulated	81	31°	16°
Salt rock, crushed	75	25°	11°
Sand, mine run	95	35°	21°
Sand, coarse sized	95	30°	16°
Sand, very fine	95	32°	18°
Sand, core	65	39°	27°
Sand, voids full of water		45°	33°
Slag, furnace granulated	122	25°	13°
Slag, Birmingham	82	25°	13°
Slate, fine ground	82	35°	22°
Slate, granules flakey	87	28°	15°
Soap Chips	10	30°	18°
Soda Ash light	30	37°	25°
Soda Ash dense	66	32°	19°
Soda Ash Briquette	50	22°	10°
Soda, Bicarbonate	43	42°	27°
Sodium Nitrate, granular	68	24°	11°
Sodium Sulfate, (fine and lumps)	88	31°	18°
Starch Tablet granular crystals	40	24°	12°
Sulpha, pulverized	50	45°	30°
Sulpha, coarse	76	32°	20°
Sawdust, drip	20	36°	22°
Sawdust, ground	20	45°	31°
Shale	85	39°	26°
Wheat (60 lbs. per bu.)	48	23°	10°
Zinc ore roasted granular	110	38°	27°

There are three basic types of stockpiling equipment—conveyors, mobile units, and overhead bridge cranes.

The system or equipment that best meets your stockpiling needs is, of course, the one that will give the lowest handling cost per ton of material.

The size and shape of the available space has a significant bearing on the type of system you select. Mobile equipment, for example, is more adaptable to irregular stocking areas, whereas rectangular spaces will be served better by conveyor systems or bridges.

The following pages contain important information about the three basic types of equipment and examples of the use of this equipment in actual stockpiling operations.

CONVEYORS . . .

Versatile Hands For Stockpiling

Conveyors are being used in ever-increasing numbers for handling and stockpiling bulk materials. In all mining and quarrying plants, the greatest single item of operating cost is material handling, of which transportation is a major factor. Such transportation is required from the mine (source of supply), to the processing plant, to the stockpile, to the final destination. Conveyors are used to transport these materials to and from the various areas.

There are no set rules for using conveyors in preference to another type of equipment. They can be used for long and continuous hauls with heavy capacities, or for short and intermittent, light operations.

For instance, one company uses a conveyor system 18,485 feet long to transport copper ore. In sixteen years of operation the system has carried a total ore weight of 130,886,134 tons. A belt conveyor 60 inches wide and 1412 feet long is part of the system. It hustles copper ore along at 600 fpm. Ore is discharged by a traveling tripper to a second 60 inch belt, which conveys to a secondary crusher house. All told, it takes 2500 conveyor carriers to keep the ore rolling smoothly and without interruptions.

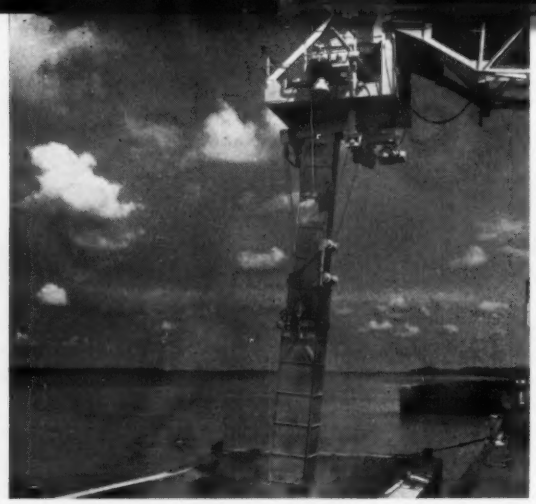
To handle wet phosphate rock, another firm uses an inclined 30 inch wide stationary belt conveyor to receive the rock; and a 24 inch wide, 500-foot long, reversing shuttle belt conveyor which distributes material to proper piles.

Another conveyor application is a stationary conveyor discharging gravel onto a horizontal conveyor, which is mounted on a radial track allowing radial type stockpiling or transferring to another horizontal conveyor which can be used as a radial stockpiling unit.

A problem common to manufacturers around the

(More on next page)

BELT CONVEYOR—388 feet long, 48-inch wide—travels 525 fpm carrying sulphur to loading docks.



CONVEYOR SYSTEM is adjustable up and down to compensate for the water level and the size of ship.

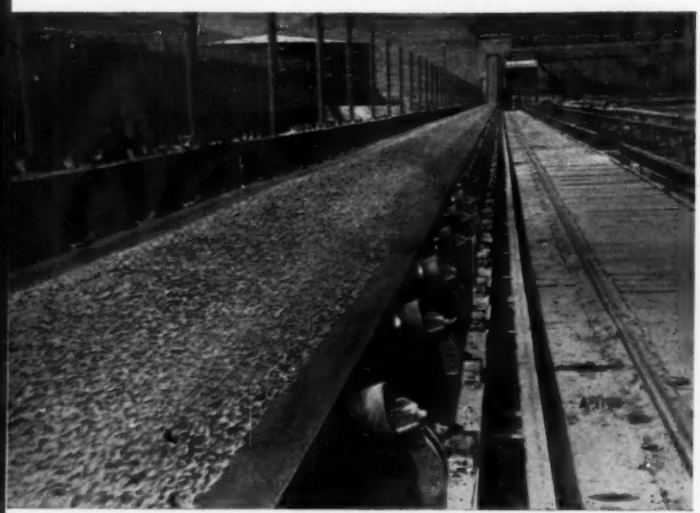
"Reclaiming bulk material is another

Great Lakes is to keep a large enough supply of material on hand for the winter months when ice blocks the water way and no material can be received. One manufacturer receives coal from self-unloading boats at the rate of 2500 tons an hour. The coal is discharged from the self-unloader boat boom conveyor into a large hopper which funnels the material to a 72-inch belt conveyor. By the use of this conveyor system the manufacturer plans to ultimately stockpile 350,000 tons of coal for use during the non-navigation season.

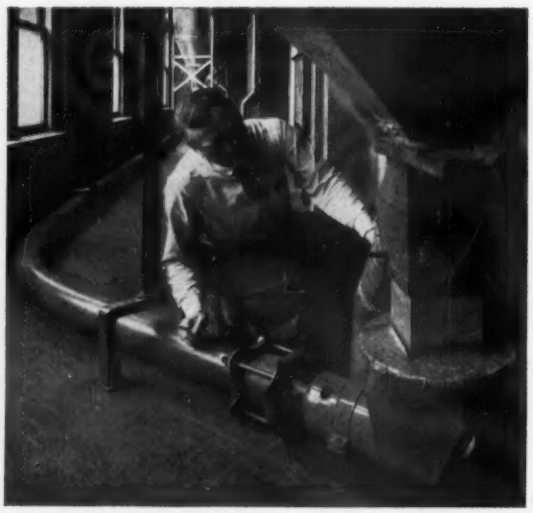
Reclaiming bulk material is another function that can be performed by conveyors. In one case gravel is stocked by a revolving conveyor stacker, and is reclaimed on a 24-inch wide belt conveyor. Reclaim rate is 300 tons per hour.

Green coffee beans are reclaimed from storage in another operation by the use of an air conveyor system. Beans enter the conveyor from storage bin via of a hopper. A remotely operated cut-off gate regulates the flow of beans from the bin into the hopper. Beans are received into a screw conveyor for distribution into bins.

One stockpiling system includes the use of a total of twenty-one belt conveyors. They are: A 54-inch wide belt conveyor for handling trap rock betwen primary and secondary crushing; A 36-inch wide belt conveyor from secondary crushing to first screening station; Two 36-inch, two 30-inch, ten 24-inch, and two 18-inch wide belt conveyors used between 1st and 2nd and 2nd and 3rd screening stations, and screening stations and storage piles. Here's how it works: The rock is transported from the primary to secondary crushing on the 54-inch wide belt conveyor. The 36-inch wide conveyor then moves it from the secondary crushing to the first screening station. Rock is classified at the



BELT CONVEYOR—18,485 feet long—transports ore at the speed of 600 fpm from the mine to crusher.



AIR CONVEYING system reclaims green coffee beans from storage bins and delivers to processing room.

TRAVELING STACKER, 72 feet high, receives and discharges coal at the rate of 2500 tons an hour.

BELT CONVEYORS automatically deposit different size rocks to their correct stockpile and also reclaim.

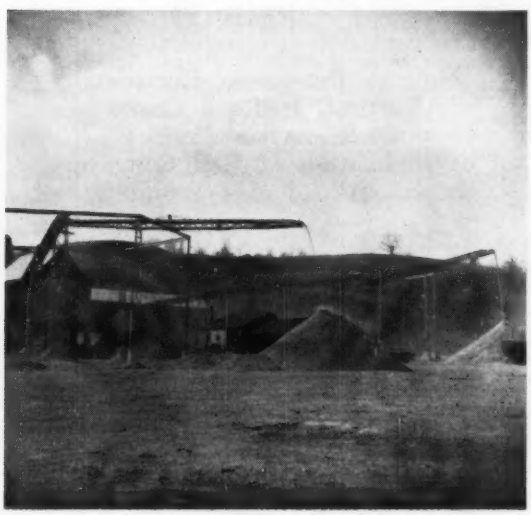
function that can be performed by conveyors."

screening station, according to size; and is automatically discharged onto the proper conveyor, which deposits it on one of six stockpiles, in sizes of 3/8, 3/4, 1, 1½, 2, and 4 inches. Two additional piles are used for refuse and tailings.

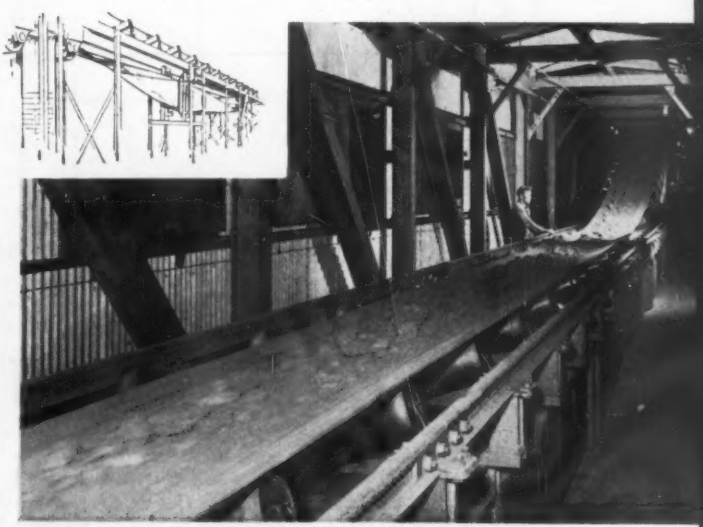
Rock is reclaimed from 3/8" and 3/4" stockpiles by means of individual 30-inch wide underground belts. A single 36-inch wide underground belt is used for reclamation of stone from both 1" and 1 1/2" piles. As the demand and storage for 2" and 4" rock is considerable less than the smaller sizes, this material is surface reclaimed by trucks.

Another system is an extremely interesting case where mining and stockpiling operations are timed around weather conditions. For several months during the winter, the Great Lakes ore carriers are locked in by ice. This means that ore mined throughout the winter must be stored until late spring. Belt conveyors are used for stockpiling the ore. Up until the time of the belt conveyor system, mine cars and high trestles were used for stocking the ore. In winter, stockpiles froze solid because of intermittent stockpiling. Reclaiming ore from frozen solid stockpiles was difficult. However, with the conveyor system, stockpiling is a continuous operation. Reclaiming ore during cold months is easier because only the outside shell of the stock piles are frozen. Due to the wet, sticky condition of the ore, it would adhere to some extent to the carrying side of the conveyor belt. On this type of job, the conveyor belt is turned over 180 degrees just after leaving the head pully, so that the clean side of the belt is presented to the return idlers. Just before entering the foot pulley, the belt is once again turned over 180 degrees. This results in an extremely clean operation along the entire run of the belt, because there is

(More on next page)

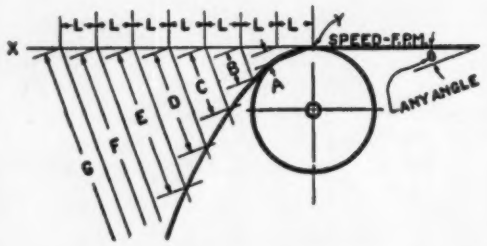


STATIONARY CONVEYOR discharges gravel to a boom type conveyor mounted for radial stockpiling.



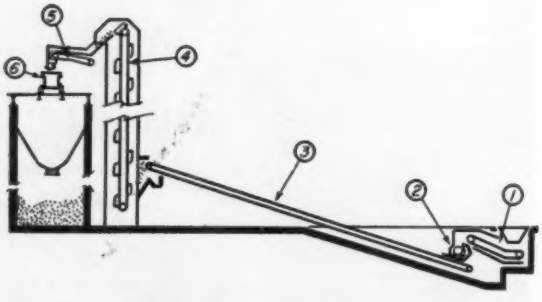
INTERIOR of conveyor gallery is clean because of turnover operation that eliminates dropped material.

HOW TO DETERMINE DISCHARGE CURVE



	Decimal	Fraction Ins.		Decimal	Fraction Ins.
A	.43	7/16	I	39.07	39 1/16
B	1.93	1 15/16	J	48.24	48 1/8
C	4.34	4 11/32	K	58.37	58 3/8
D	7.72	7 23/32	L	69.47	69 15/32
E	12.06	12 1/16	M	81.53	81 17/32
F	17.37	17 3/8	N	94.55	94 9/16
G	23.64	23 5/8	O	108.54	108 17/32
H	30.87	30 7/8			

In a drawing, to any convenient scale, indicate the discharge pulley and the angle of the belt to the horizontal as shown in the sketch and continue the direction of the belt in the line "XY". On this line from "Y" lay out the equal dimensions L.L.L., etc., where L. in inches equals speed of belt in feet per minute, divided by 100. At the end of the various spaces L. L. drops down vertically the dimensions A. B. C. D. etc,. in inches, taken from the table above. Then to fine the trajectory of path of the material as it leaves the belt, draw a continuous curve from the point Y thru the bottom of the successive dimensions A. B. C. D., etc.



TYPICAL STOCKPILING operation using belt conveyors. Material is received by rail cars and dumped into hopper. Belt conveyor (1) carries it to crusher. Belt conveyor (2) transports material to bucket elevator (3)—third belt conveyor (4) carries material from elevator to shuttle conveyor (5) deposits in storage bin.

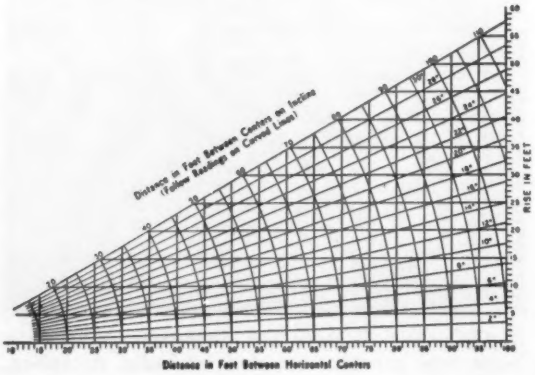
no dropping of material. Also, material buildup on the return idlers is eliminated, resulting is longer idler life, longer belt life, and reduced belt fleeting.

The loading of lake vessels is accomplished in another conveyor installation by twenty-five 42″ wide shuttle belt conveyors with reciprocating feeders and weighing devices, delivering pellets from track hopper. Each unit can load and trim at 750 to 1500 gross tons per hour. The shuttle conveyor deposits the material into hoppers which feed onto belt conveyors that transport the material to the vessel.

Another system handles sulphur at a rate of 1600 tons per hour. Here's how it works; Sulphur weighing 75 pounds per cubic foot is carried to the dock by a 388-foot long conveyor with 48-inch wide belt traveling 525 fpm. From the dock conveyor the material is transferred by means of a tripper trailer to a shuttle conveyor running up to the loading tower. The shuttle conveyor, 54 inches wide and 146 feet long, is mounted on wheels which run on a track along the dock. A telescoping chute is mounted on the end of the shuttle conveyor. When a ship is being loaded, the shuttle conveyor can be moved to any position along the dock so that the sulphur is easily loaded into any size ship or any part of a ship. The conveyor boom can be moved up and down to compensate for the water level and size of ship. Every movement of the loading mechanism is remotely controlled by push-buttons operated by one man aboard the ship.

As you can see, conveyors are versatile. They can be used in many stockpiling operations. However, many factors must be considered before selecting a conveyor system. Some of these factors are the capacities of belt conveyors for bulk materials; maximum lump size and idler spacing; speeds and capacities for various materials and belts; discharge curve of bulk material from the belt; and angles of inclination. The various charts shown here, can help you decide on the right conveyor for your stockpiling operation.

How to Determine Horizontal, Vertical, Inclined Center Distances and Angles of Inclination of Belt Conveyors



SPEEDS AND CAPACITIES FOR VARIOUS MATERIALS AND BELTS

Belt Width	Weight per Cu. Ft. of Material	CAPACITY IN TONS PER HOUR — Belt Speed—F.P.M. 100	150	200	250	300	350	400	450	500	550	600	Cross-Section of Load Square Feet	Cubic Feet per Hour @ 100 F.P.M.	Cubic Yards per Hour @ 100 F.P.M.	*Bushels per Hour @ 100 F.P.M.
14	30	9	14	19	24	28	—	—	—	—	—	—	.108	648	24	315
	50	16	24	32	40	47	—	—	—	—	—	—				
	75	24	35	47	60	71	—	—	—	—	—	—				
	100	32	47	63	79	95	—	—	—	—	—	—				
	125	40	60	80	100	120	—	—	—	—	—	—				
	150	47	71	95	120	140	—	—	—	—	—	—				
16	30	13	19	25	31	38	—	—	—	—	—	—	.140	840	31	400
	50	21	31	42	52	63	—	—	—	—	—	—				
	75	31	47	63	79	94	—	—	—	—	—	—				
	100	42	63	84	105	125	—	—	—	—	—	—				
	125	52	78	105	130	155	—	—	—	—	—	—				
	150	63	94	125	155	190	—	—	—	—	—	—				
18	30	16	24	32	40	48	56	64	—	—	—	—	.180	1070	40	520
	50	27	40	53	67	80	94	105	—	—	—	—				
	75	40	60	80	100	120	140	160	—	—	—	—				
	100	53	80	110	135	160	190	215	—	—	—	—				
	125	67	100	135	170	200	235	270	—	—	—	—				
	150	80	120	160	200	240	280	320	—	—	—	—				
20	30	20	30	40	50	60	70	80	—	—	—	—	.225	1350	50	650
	50	33	50	67	83	100	115	135	—	—	—	—				
	75	50	75	100	125	150	175	200	—	—	—	—				
	100	67	100	135	165	200	235	265	—	—	—	—				
	125	83	125	165	210	250	290	335	—	—	—	—				
	150	100	150	200	250	300	350	400	—	—	—	—				
24	30	29	44	59	73	88	105	120	130	145	—	—	.330	2000	73	960
	50	49	73	98	120	145	170	195	220	245	—	—				
	75	73	110	145	185	220	255	295	330	365	—	—				
	100	98	145	195	245	295	345	390	440	490	—	—				
	125	120	185	245	310	370	430	490	550	610	—	—				
	150	145	220	295	365	440	515	590	660	735	—	—				
30	30	47	71	95	120	140	165	190	215	235	—	—	.530	3200	118	1540
	50	79	120	160	195	235	275	315	355	395	—	—				
	75	120	175	235	295	355	415	470	530	590	—	—				
	100	160	235	315	395	470	550	630	710	790	—	—				
	125	195	295	395	490	590	690	790	890	980	—	—				
	150	235	355	470	590	710	825	945	1065	1180	—	—				
36	30	70	105	140	175	210	245	280	315	350	385	420	.780	4700	173	2260
	50	115	175	235	290	350	410	465	525	585	640	700				
	75	175	260	350	435	525	610	700	790	875	960	1050				
	100	235	350	465	585	700	815	935	1050	1160	1280	1400				
	125	290	435	585	730	870	1020	1170	1310	1460	1600	1750				
	150	350	525	700	875	1050	1225	1400	1570	1750	1920	2100				
42	30	98	145	195	245	295	345	390	440	490	540	585	1.085	6500	241	3120
	50	165	245	325	410	490	570	650	735	815	900	980				
	75	245	365	490	610	735	855	980	1100	1220	1350	1470				
	100	325	490	650	815	980	1140	1310	1470	1630	1790	1960				
	125	410	610	815	1020	1220	1430	1630	1840	2040	2240	2450				
	150	490	735	980	1220	1470	1710	1960	2200	2450	2690	2940				
48	30	130	195	265	330	395	460	525	590	655	720	790	1.460	8750	325	4200
	50	220	330	440	545	655	765	875	985	1090	1200	1310				
	75	330	490	655	820	985	1150	1310	1480	1640	1810	1970				
	100	440	655	875	1095	1310	1530	1750	1970	2190	2410	2630				
	125	550	820	1090	1370	1640	1920	2190	2460	2740	3010	3280				
	150	655	985	1310	1640	1970	2300	2630	2950	3280	—	—				
54	30	170	255	340	425	510	595	680	770	855	940	1020	1.900	11400	422	5500
	50	285	425	570	710	855	995	1140	1280	1420	1560	1710				
	75	425	640	850	1070	1280	1490	1710	1920	2130	2350	2560				
	100	570	855	1140	1420	1710	1990	2270	2560	2840	3130	3410				
	125	710	1070	1420	1780	2130	2490	2840	3200	—	—	—				
	150	855	1280	1710	2130	2560	3000	3410	—	—	—	—				
60	30	215	325	430	540	650	755	865	970	1080	1190	1300	2.400	14400	533	6950
	50	360	540	720	900	1080	1260	1440	1620	1800	1980	2160				
	75	540	810	1080	1350	1620	1890	2160	2430	2700	2970	3240				
	100	720	1080	1440	1800	2160	2520	2880	3240	—	—	—				
	125	900	1350	1800	2250	2700	3150	—	—	—	—	—				
	150	1080	1620	2160	2700	3240	—	—	—	—	—	—				

CAPACITIES OF FLAT BELT CONVEYORS FOR BULK MATERIALS

Width of Belt Inches	Cross Section of Load Sq. Ft.	Cu. Ft. Per. Hr. At 100 F. P. M.	Cu. Yds. Per Hr. At 100 F. P. M.	Bushels Per Hr. at 100 F. P. M.	Tons per Hour at Speed of 100 Ft. per Min. — Weight of material in Lbs. per Cubic Foot 25	50	75	100	125
14	.049	294	10.9	236	3.7	7.4	11.1	14.8	18.5
16	.064	384	14.2	309	4.8	9.6	14.4	19.2	24.0
18	.081	486	18.0	391	6.1	12.2	18.3	24.4	30.5
20	.100	600	22.2	482	7.5	15.0	22.5	30.0	37.5
24	.144	864	32.0	694	10.8	21.6	32.4	43.2	54.0
30	.225	1350	50.0	1085	16.9	33.8	50.7	67.6	84.5
36	.324	1944	72.0	1562	24.3	48.6	72.9	97.2	121.5
42	.441	2646	98.0	2126	33.1	66.2	99.3	132.4	165.5
48	.576	3456	128.0	2777	43.2	86.4	129.6	172.8	216.0


ALLIS-CHALMERS
HD9 DIESEL

If you need increased storage capacity in already confined areas . . .

If you want to completely utilize areas of irregular shape . . .

If there is no available space for fixed or permanent equipment . . .

Try using . . .

MOBILE EQUIPMENT . . .

Flexible Hands For Stockpiling

MOBILE equipment (tractors, powered cranes, shovels, and draglines) is being used extensively in stockpiling operations because of its flexibility. It is flexible in that it can be worked easily into existing stockpiling and handling systems to augment or replace installations already there, or be adapted to particular conditions involved in new stockpiling operations. A need for increased storage capacity in confined areas and the problem of stockpiling in areas of irregular shape are two reasons for the increasing use of mobile units.

Because of this flexibility, mobile equipment is suitable to various operations.

For instance, one company uses two powered shovels—equipped with special three cubic yard buckets—to load bulk sugar from the stockpile into a conveyor that travels to ship's hold.

Another company uses a tractor, equipped with a specially designed push plate mounted on the dozer blade, to push a train of 70-ton hopper cars to the unloading area. The cars are spotted over an underground hopper into which the ore is dropped. From the underground hopper, the ore travels on a conveyor belt moving at the rate of 1500 tons per hour. From the conveyor the ore is loaded into a fleet of six scrapers, each with a capacity of 27 tons. The scrapers transport the ore to the stockpile area. Each machine makes 15 trips an hour and longest haul distance is 3000 feet. On the return trip from stockpile to the hopper for loading, the operator lowers the pan on the machine so that a level grade is maintained on the haul road. A finished stockpile measures 800 feet wide, 3000 feet long and 45 feet in height and contains about

(More on next page)

SELF-PROPELLED clamshell is "order-picker", quickly rolls to any part of yard to load trucks for delivery.

MOBILE CRANE swings bucket loads of sand over truck road and loads rail cars for delivery to foundry.

"... *use of mobile*

5 million tons of ore. This company has been able to combine successfully two basically different concepts of material handling. Matching the mobile tractors and scrapers with the usual conveyor systems has formed an efficient stockpiling system.

Still another firm uses mobile equipment for stockpiling sand. The majority of the available sand lies under a 10-acre lake. A hydraulic dredging operation is used to recover the material. Before the dredging begins, the sand must be mixed. This is done by trucking loads of coarse sand, from other sections on the firm's holdings, to the dredge and dumping this coarse sand on the lake bottom. Here the coarse sand mixes with the fine sand in the lake so that when the dredge removes the material it is already blended to pre-determined specifications. A combination clamshell, dragline and shovel loads the trucks after a tractor removes the earth overburden. Sand and gravel flow from the dredge through a pipe to the processing plant. From the processing plant trucks haul the gravel to stockpiles. A clamshell rehandles the sand coming off the conveyor. When trucks pull in for loading they are driven under a 100-ton hopper. The clamshell loads the hopper which then fills the trucks.

In another operation, sand is stockpiled in a 250,000 ton storage yard some seven miles from the foundry

CRAWLER CLAMSHELL handles 2,500 tons of sand per hour, with 50-foot boom and 2 cubic yard bucket.

equipment is varied because of its flexibility . . . ."

that uses it. It must be transported to the foundry bins via railroad. The sand arrives at the stockpile area by ship and is unloaded into large piles at the water's edge. These piles have to be spread back from the shore to make room for subsequent shipments. A 30-ton crawler tractor equipped with a 14-foot dozer blade knocks down the piles, spreads the sand as far as desired, and still has time for other jobs. The tractor moves the sand, in bites of about 16 tons, almost a quarter of a mile if necessary. When the railroad hopper cars are to be loaded, to transport the sand to the foundry, the tractor moves the sand in the opposite direction—back toward the receiving point—so that it can be loaded. (The railroad runs parallel to the ship dock.) A mobile crane with clamshell bucket swings sand over a truck road and into the cars.

A power company, located on the Great Lakes, had to increase the tonnage of coal burned per day from 1800 tons to approximately 4000 tons of coal per day. This increase was due to increasing power demands. To provide for this increased requirement of coal, the company increased their stockpile from 350,000 tons to 700,000 tons. This increase presented many problems in the economic handling of the coal. To solve this handling problem, the company uses a tractor with a 20 foot blade to doze the coal to within reach of a reclaiming crane, which deposits the coal onto a yard belt for delivery to breaker house, then into the plant. Coal to be stockpiled is dumped into a 1400 ton hopper and carried by a conveyor directly to the mobile equipment for working into the stockpile.

A self-propelled clamshell, at a lime and stone company, serves as an order picker. It rolls to any part of their extensive yard to load out trucks with various specified materials from widely scattered stockpiles. A 1¼ yard clamshell bucket is used on a 40 foot boom, loading as much as 200 yards an hour.

Still another company uses a self-propelled shovel to load trucks with crushed stone from stockpiles.

One of the country's largest suppliers of ready-mix concrete uses a rail mounted crane to load barges at the gravel pit, and another rail mounted crane to unload the barges at the batching bins.

As you can see from the various applications pointed out here, the use of mobile equipment is varied because the flexibility of the equipment allows it to be used or worked into almost any system or handling operation.

Another type of equipment used in stockpiling operations is the cable dragline. It is not necessarily mobile, but can be applied to many handling operations.

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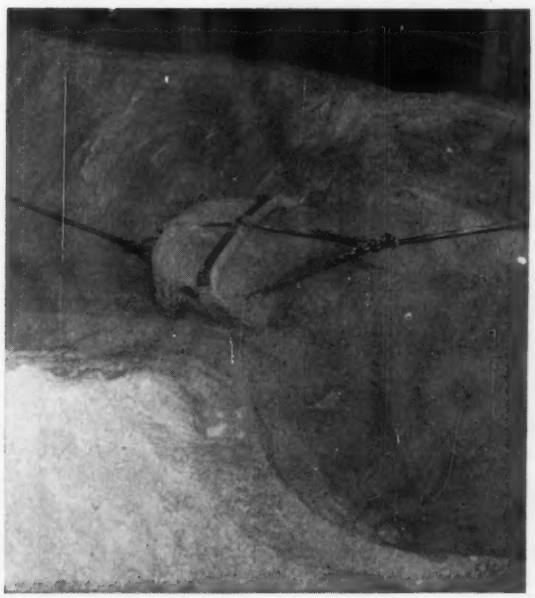
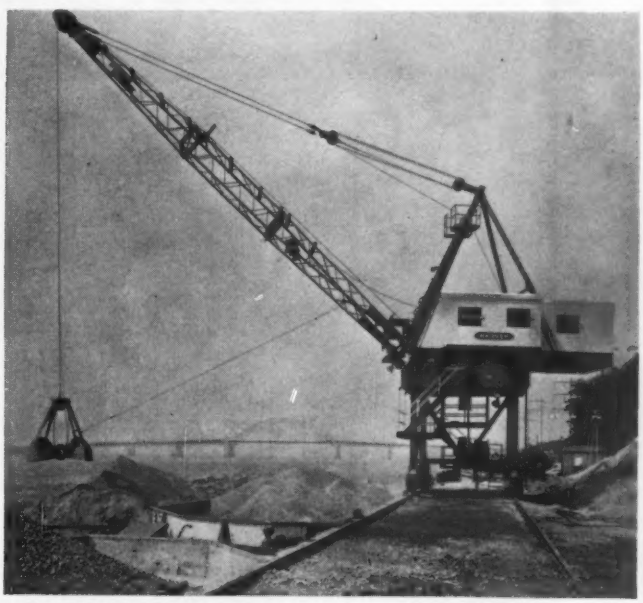


CABLE DRAGLINE reclaims sugar from stockpiles onto a belt conveyor for delivery to the processing plant.



RAIL MOUNTED CRANE loads barges at the gravel pits, for delivery to large ready mix concrete plant.

"... two different traction mountings are also available ..."

One example is in a sugar warehouse, where the sugar is delivered to the warehouse by an overhead conveyor and traveling shuttle bridge. The cable dragline reclaims the sugar from the stockpile to an inclined bulkhead containing chutes which drop the sugar onto a belt conveyor traveling to the refinery. When the dragline is not reclaiming, it is used to level off the piles formed by the overhead conveyor.

Two Traction Mountings For Most Models

In addition to the flexibility made possible by the various types of mobile equipment and various attachments for each model, two different traction mountings are also available for most models. These are primarily classified as crawler traction mountings and rubber tire traction mountings.

Although the crawler provides the best traction for soft ground or wet bottom operations, it has a universal use under almost any and every condition. Crawler traction mountings are available in a wide range of sizes to give most effective bearing areas for meeting ground conditions. Both extra long and extra wide tracks are available and wide shoes in the belts can be used to increase bearing area. Cleats also are available to increase grip of the belts in soft or slippery material.

There are two types of self-propelled rubber-tired wheel mountings in use. These are the single engine, or so called wheel mountings, and the two engine or truck mounting.

Due to the versatility of mobile equipment there are no definite rules that can be applied to the selection of one type of equipment for your stockpiling operations. The type of equipment that best meets your handling needs and results in the lowest handling cost per ton of material is still the main rule that governs the selection of any equipment.

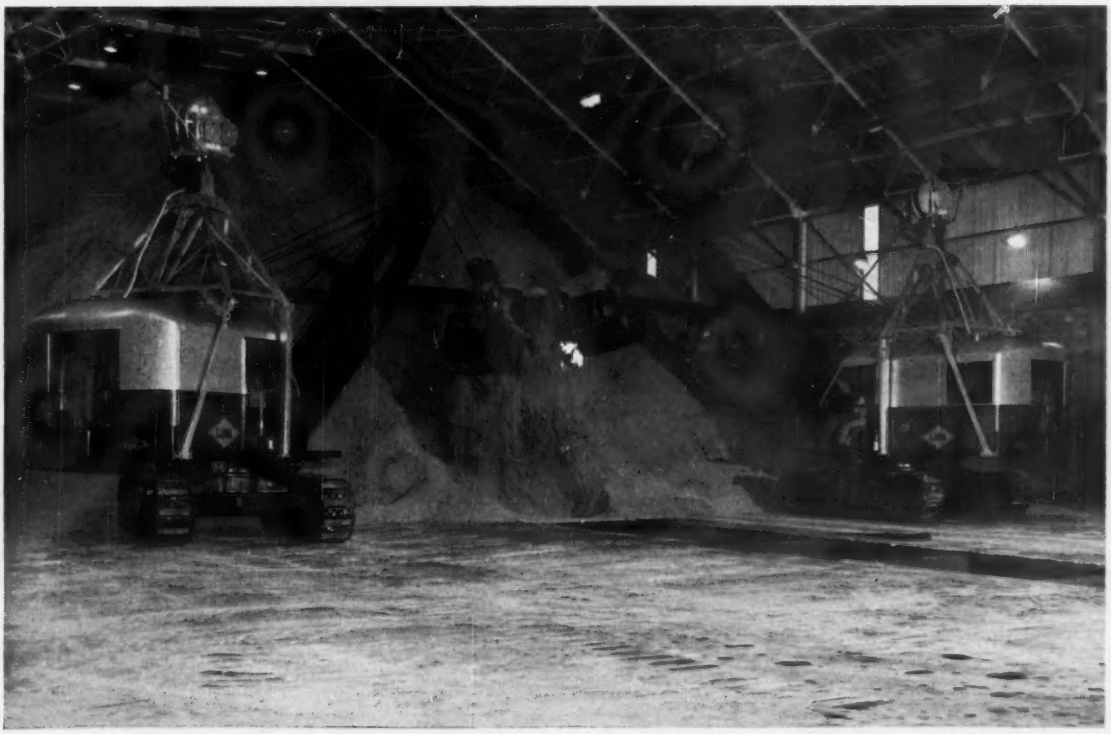
Conditions where crawlers are most advantageous can be grouped, for the most part, in the following classifications:

1. In soft terrain where the large bearing area of the crawler tracks insures proper movement and stability.
2. In heavy excavation, such as quarry and mining operations, and where the floor or terrain is uneven, or sharp rock fragments are detrimental to tires.
3. Where the size and weight of the machine is such that rubber-tired mounting is impractical.
4. Where there is no need for frequent and high speed movement of the machine over a widely separated series of operations.

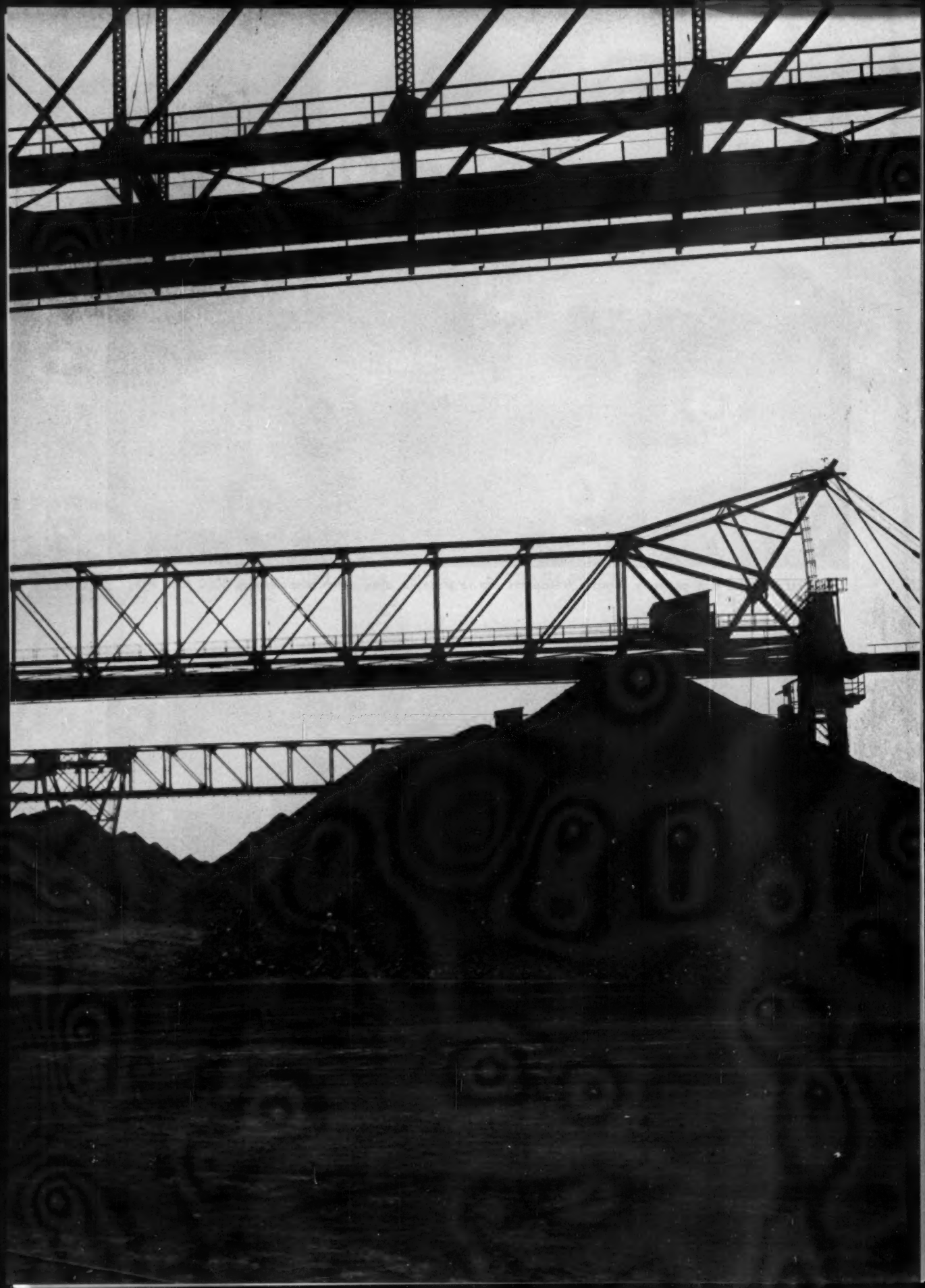
Conditions under which tire traction mountings are especially applicable are as follows:

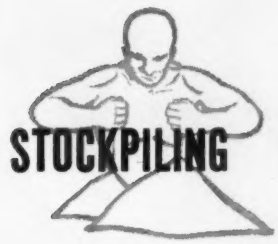
1. Where the ability of the machine to transport itself quickly from one location to another is important.
2. Where ground conditions or working floor are sufficiently firm and level to permit moving and working on rubber tires.
3. Where the use of crawler traction is prohibitive either for reasons of damage to footing or legal regulations.
4. Where abrasive materials on roadway causes abnormal wear of crawlers and rubber-tired mounting meets operating conditions.

TWENTY-SEVEN ton capacity scraper transports ore to stockpile area which is sometimes 3000 feet away.



TWO SHOVELS load bulk sugar into center conveyor that travels to ship's hold. Shovels have 23' booms.





OVER
- Open storage yards . . .
- Bins in buildings . . .
- Mines and docks . . .
- Permanent stockpiles . . .
- You'll find . . .

BRIDGE CRANES . . . Specialized Hands For Stockpiling

Overhead bridge cranes are specialized handling equipment designed for the most part for specific and permanent handling operations. They are especially suited for rectangular areas where the handling operations are continuous and centered around a central point.

Bridge cranes have a unique advantage over other types of equipment in that they require no floor or ground space and their reach is limited only by the dimensions of the runway. They can handle a wide variety of sizes or weights of loads. Furthermore, the bridge crane runs on a clear track and in transferring its load from one location to another location, does not interfere with other operations on the ground.

They provide a means of handling bulk material on a one-man basis. The crane operator, by means of a clamshell type bucket, is the only man required in the handling of bulk materials from cars to storage piles and from storage piles or cars to the production area for further processing and then shipping.

Cranes used in conjunction with stockpiling operations and handling bulk materials follow the design of a standard bridge except they are made more rugged for severe and continuous service. For instance, a larger bridge motor may be required to take care of the heating of the motor due to the continuous operating cycle. If no fast cycle is involved the only change necessary would be to provide for additional clearance between the bucket and the operator's cab.

If the bucket opens with the cutting edges parallel with the bridge girders, the bucket is said to open at right angles to the bridge griders and if the cutting edge is at right angles to the girders, the bucket opens parallel with the girders. At least eighteen inches of clearance should be provided between the face of the cab and the edge of the bucket in its open position. The live load includes weight of the bucket, material to its heaped capacity and the trolley (which is heavier than normal due to double-hoist design).

The capacity, dimensions and weights of bucket trolleys are shown in a table included in this article. The range of capacity and recommended speeds for bucket cranes are also shown.

Before you select a crane, it is important that certain basic factors regarding its use be given thorough

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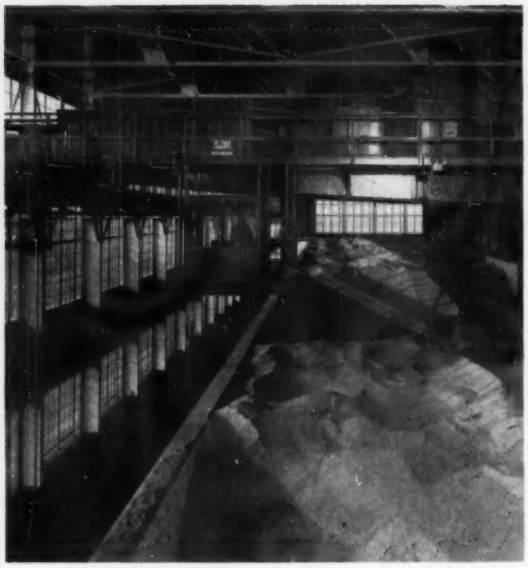
THREE FIFTEEN TON bridge cranes are used to speed-up the unloading of Great Lakes ore carriers.



TRAVELING CRANE stockpiles sand at one foundry in a covered storage area that is divided into bins.

consideration. They are briefly:

1. Materials to be handled.
2. Equipment to be serviced.
3. Capacity of lifts and number of lifts.
4. Operating area.
5. Height of lift and distance to be traveled.
6. Operating speeds.

If these factors are carefully analyzed, the requirements of the crane for any given application will become apparent and then the details of construction can be determined.

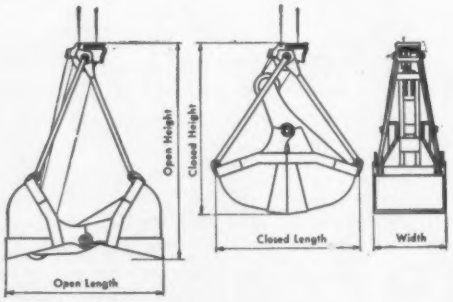
Bridge cranes are permanent installations. Much care should be used in selecting the type of crane that exactly meets your handling needs. They are used for many handling operations; for instance, ore—at one company—arrives at a riverside dock in conventional lake boats. Bridge cranes unload from the holds of the boats to the adjacent side of the ore storage yard through an average hoist distance of about 35 ft. and an average travel distance of nearly 130 ft. With a loaded bucket of 12 gross ton capacity and an operating cycle of 41 seconds, each bridge is capable of unloading at a rate of 1054 gross tons per hour. In addition, the bridges also transfer ore from the center of the stockpile to receiving hoppers at the rate of 900 gross tons per hour, involving a lift of 35 ft., an average travel distance of 190 ft. and a cycle time of 48 seconds.

Bucket Trolleys

Capy. in Cu. Yds.	Wheel Base	Standard Gauge	Max. Lift	Height of Trolley	Drum Dia.	Max. Load on Drums	Top of Bucket to Top of Trolley	Weight of Trolley
½	7'9"	8'0"	50'0"	2'9"	13"	5000	4'3"	10,000
1	7'9"	8'0"	50'0"	2'9"	15"	5000	4'3"	10,500
1½	8'6"	9'0"	50'0"	3'1"	15"	10000	4'7"	13,000
2	8'6"	9'0"	50'0"	3'1"	15"	10000	4'7"	13,000
3	9'6"	9'6"	50'0"	4'9"	18"	18000	5'6"	19,000
4	11'8"	9'6"	75'0"	4'8"	24"	22000	6'2"	36,000

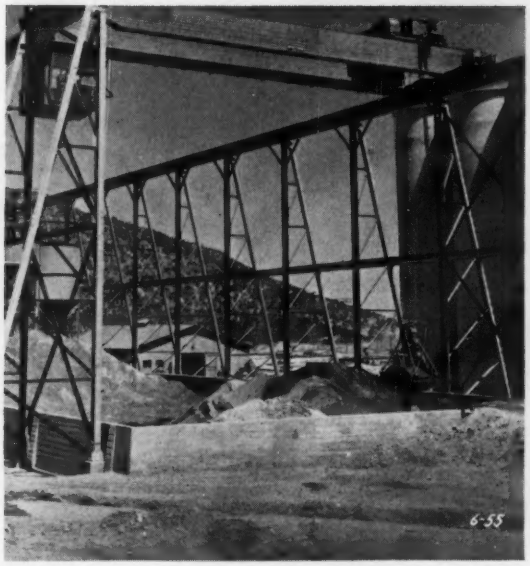
Bucket Crane Speeds

Capy.	Hoist	Trolley	Bridge
½	60-140	150	400
1	75-120	150	400
1½	75-225	200	400
2	75-200	200	400
3	60-175	200	400
4	100-180	200	400



Dumping Angles

Material	Angle	Material	Angle	Material	Angle
Ashes, dry	33°	Clay	45°	Ore, dry	30°
Ashes, moist	36°	Coal, hard	24°	Ore, fresh mined	37°
Ashes, wet	30°	Coal, soft	30°	Rubble	45°
Asphalt	45°	Coke	23°	Sand, dry	35°
Brick	33°	Concrete, soft	30°	Sand, moist	40°
Cinders, dry	33°	Earth, loose	28°	Sand, and crushed stone	27°
Cinders, moist	34°	Earth, compact	50°	Stone	30°
Cinders, wet	31°	Garbage	30°	Stone, broken	27°
Cinders, and clay	30°	Gravel	40°	Stone, crushed	30°



OVERHEAD TRAVELING cranes are used to handle and stockpile materials from which cement is made.

BRIDGE CRANE—seventeen ton capacity, 577 feet long—unloads lake vessels, stockpiles and reclaims.

Another company uses a 17-ton capacity structure with a total length of 577 feet. It performs triple operation—unloading Great Lakes vessels, stockpiling ore and reclaiming it for blast furnaces.

Still another company uses three 15-ton unloading bridges to unload holds of Great Lakes ore carriers.

The above examples point out some of the many and varied operations performed by bridge cranes. The speed, capacity and travel distances for each operation are different. This means that any bridge crane should be designed for and used on a particular operation.

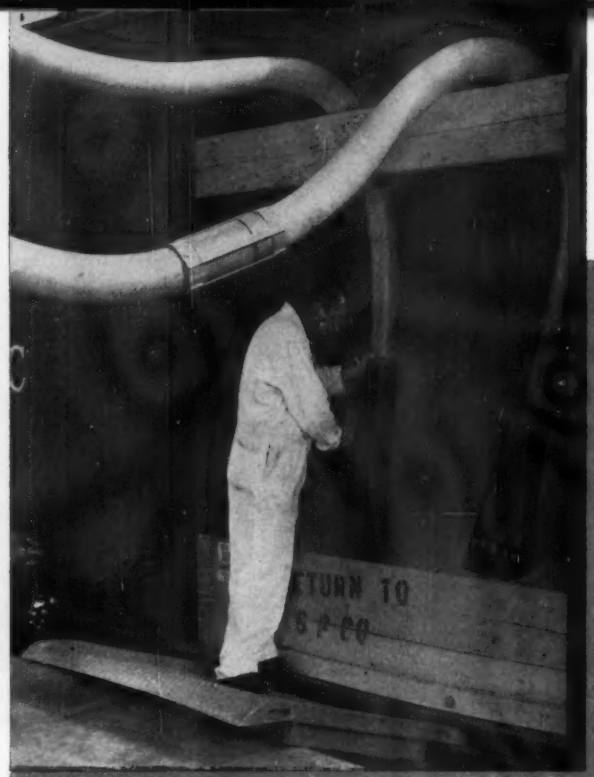
Angles at which different materials will slide out of a tripped body (shown in table) are another consideration when selecting the proper crane.

All in all a system of bridge cranes, conveyors, mobile equipment or any combination of the three will result in efficient handling if you completely analyze your stockpiling needs.

FLOW thanks the following for their help in preparing this report: Allis-Chalmers Mfg. Company; Baldwin-Lima-Hamilton Corp.; Baughman Mfg. Company, Inc.; Caterpillar Tractor Company; Chain Belt Company; Clyde Iron Works, Inc.; Dracco Corp.; Dravo Corp.; Electric Overhead Crane Institute, Inc.; Hewitt-Robins, Inc.; The Jeffrey Co.; Link-Belt Company; Marion Power Shovel Co.; Ohio Machinery Company; Power Crane & Shovel Association; Sauerman Bros., Inc.; Stephens-Adamson Mfg. Company; The Thew Shovel Company; Wellman Engineering Co.; Whiting Corp.

TWENTY-ONE TON bridge crane is one of four used by large steel producer for stockpiling and handling.

From Beginning . . .



PNEUMATIC UNLOADING system speeds transfer of grain from freight car to storage bins—a car in 1½ hours.

ADVANCED PLANNING

AUTOMATED HANDLING of all materials—from incoming grain to outgoing cases of beer—is part of the low cost production secret at Anheuser-Busch's highly efficient West Coast brewery in the San Fernando Valley, 18 miles north of downtown Los Angeles.

The key to this successful material handling is careful advance planning. This is demonstrated by the million-barrel-capacity brewery which, after two years of operation, has proved that advance consideration of material handling requirements pays large dividends.

For instance, there's the technique used to transport grain from incoming freight cars through the beginning of the actual beer-making process. Included in this part of the material handling system are pneumatic conveyors, screw conveyors, bucket elevators, chutes, scale and surge hoppers, dust collection systems and other related equipment.

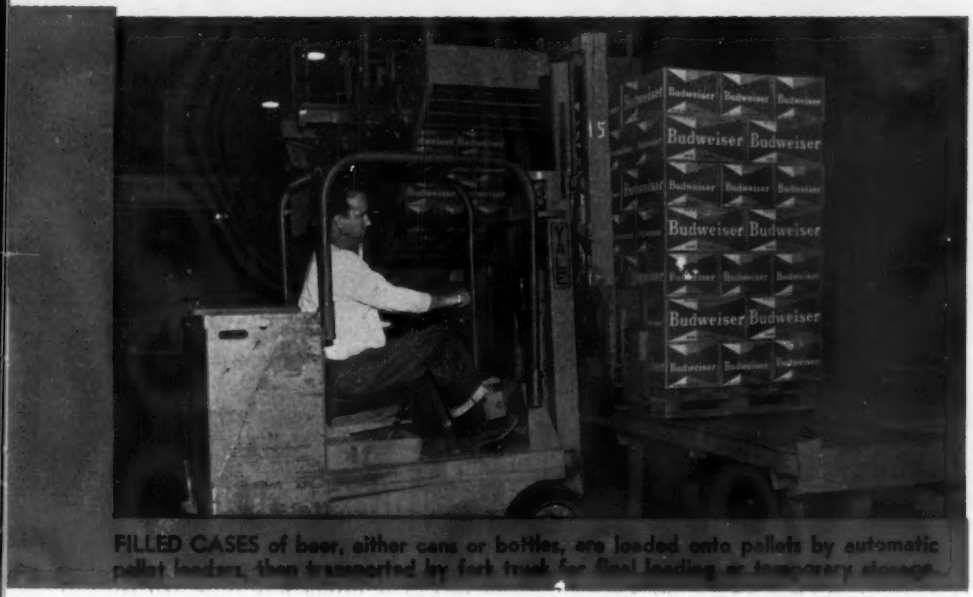
Carloads of rice and malt arrive on a spur siding and are unloaded by a pneumatic conveyor which carries the grain to the top of the 172-foot grain storage bins. With this system, it is possible for two men to unload a carload of grain—about 102,000 pounds—in an hour and a half.

At the top of the grain storage house, a selector directs the flow of grain into one of 12 different storage bins. These bins are each approximately 80 feet high. Six of these bins are large, and can store about 600,000 pounds of grain each. The smaller bins are designed primarily for rice storage and have a capacity of 475,000 pounds.

Withdrawing Grain from Storage

Grain is withdrawn from storage by chutes at the bottom of the storage bins. The flow of grain is directed onto conveyor belts, 18 inches wide on 40-foot centers. Each belt handles 25 tons per hour, and is self-cleaning so that it can be used for handling either rice or malt.

Three of these belts running parallel to each other receive grain from the storage bins. Two of them are used to handle malt from the large storage bins, each belt servicing three bins. The six smaller rice storage bins are served by the third belt.



FILLED CASES of beer, either cans or bottles, are loaded onto pallets by automatic pallet loaders, then transported by fork truck for final loading or temporary storage.

To End . . .

Pays Big Dividends

A fourth belt, located at right angles to the others, collects malt from the first two and delivers it to a chute leading directly to one of the bucket elevator conveyors. The belt servicing the six smaller bins discharges directly to the chute leading to the second bucket elevator conveyor. The bucket elevators are the centrifugal discharge double leg type and have 167-foot vertical centers. Separate conveying and storage of rice and malt is necessary because these grains are crushed and then weighed in exact quantities before the mashing procedure.

Since gravity controls the flow of liquid in the brewing process, the grain is raised by the bucket elevators to the top of the grain storage building, where it is discharged through chutes into two parallel screw conveyors. These screw conveyors are 12 inches in diameter, 26 feet long and are equipped with four outlet chutes. This permits a wide range of flexibility. Grain can be conveyed into the malt scale or into the rice scale, into the scalper, directly into screw conveyors leading to the daily storage bins, or to rotary valves which divert the grain back into any one of the 12 primary storage bins.

Two parallel screw conveyors, each 115 feet long, carry grain to the daily storage surge bins in the brew house. Malt is handled by a 12-inch screw conveyor and discharged into three bins. Rice is transported by a 10-inch screw conveyor and discharged into a single bin.

The grains are withdrawn from daily storage as needed for grinding in the malt and rice mills. The rice mill is located beneath the rice bin, and the malt mill is located directly beneath the outlets for two of the malt bins. Because of the size of the bins, one of the malt bins must be located near the rice mill and an 18-foot-long screw conveyor is used to carry the malt from this bin to the malt mill.

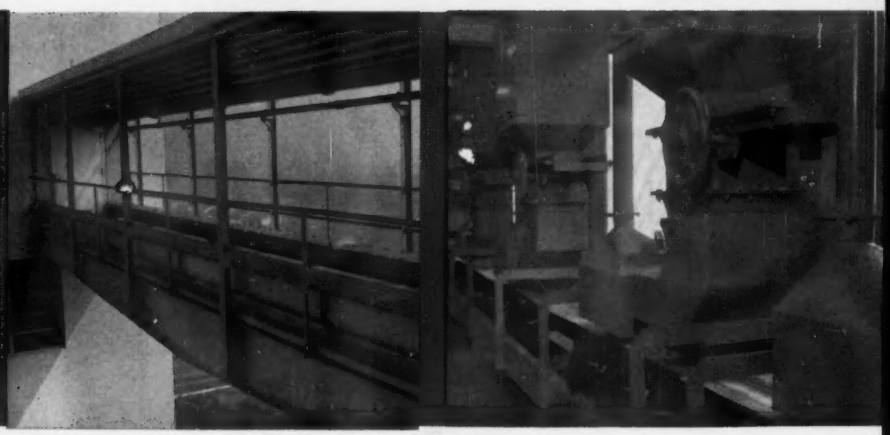
After grinding, malt and rice are discharged through flexible canvas chutes into two scale hoppers located directly below these two mills. From the scale hoppers, the grain is chuted into the mashing tanks where it is mixed with water and the brewing process begins.

The total grain storage capacity of Anheuser-Busch's

(More on next page)

Advanced Planning Pays Big Dividends

Continued



SCREW CONVEYORS bridge gap from grain storage to surge bins in brew house.

BELT CONVEYORS receive grain which is chuted from storage bins.

West Coast plant is 5½ million pounds of grain. The grain-handling system provides numerous flop gates and chutes for extreme flexibility in routing.

An indication of the high degree of mechanization in this part of the operation is that only three men, working a single shift, are required to unload the freight cars, store, select and transfer the grain from the primary storage to the daily bins in the brew house, which operates on a three-shift basis. These three men can handle a third of a million pounds of grain each day.

Since most material movement costs occur in the 265,000-square-foot packaging plant, major emphasis was placed on a layout which would lend itself readily to modern handling methods. In addition, the plant would have to be easily supervised to permit maximum utilization, flexibility and orderly expansion.

Factors Which Affected Design

Anheuser-Busch's Industrial Engineering Department used this philosophy to create a basic plan for the packaging plant and warehouse which embodied the following design premises:

1. Miscellaneous incoming materials must be received and stored at the center of usage. Such materials must also be received palletized, or in unit loads, to minimize subsequent handling involved in storage and distribution.

2. In planning for receipt of empty containers, the emphasis was again placed on minimum handling and short distances. Non-returnable bottles and cans must be palletized and received as close to the point of usage as possible. Arrangements with wholesalers to ship back empty returnable bottles by truck would minimize in-plant handling. Railroad docks must permit unloading of returnable bottles onto pallets so that segregation of 7, 12 and 32-ounce bottles may be done at the first point of handling.

3. Since automatic pallet loaders would be available, pallet handling of finished packages for shipping offered the most efficient handling system. Again, arrangements with wholesalers should be made to permit truck loading by fork truck to eliminate any manual handling of individual cases. In planning this phase, experiments were conducted to prove the feasibility of loading railroad cars with unit loads without pallets. These tests paved the way to establish carloading methods that would eliminate 85 percent of the manual handling. Railroad docks, therefore, would have to be wide enough to permit fork truck and industrial trailer train movement.

4. Handling draught beer kegs also should be accomplished with pallets to minimize handling required for intermediate storage of both returned and full packages.

5. Miscellaneous cleaning and disposal of scrap and waste also must be organized to minimize effort, handling and manpower. Past experience dictated the use of automatic sweepers and scrubbers for cleaning. However, the variety of duties involved in scrap and waste disposal would have to be minimized beyond existing systems.

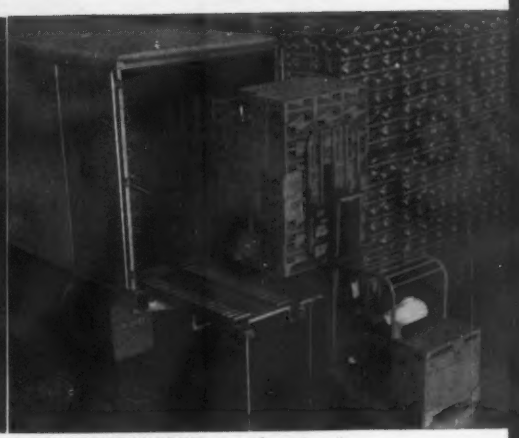
As these principles were established, it became clear that proper building layout, maximum utilization of fork trucks, tractors, industrial trailer trains and automatic cleaning equipment offered the most efficient and economical system for empty and full package handling, as well as handling miscellaneous materials and performing miscellaneous duties.

As the layout of the packaging plant progressed, the incorporation of these principles led to the construction of the packaging department, operational and seasonal warehouse as a self-contained, one-level building. Besides facilitating fork truck operation, the one-level layout eliminated costly elevators, stairways and unusable odd areas. In the warehouse section of the building, pallet loads can be stacked three high (approximately 18 feet). The distance from the bottling and canning area to the shipping docks was held to 200 feet. The combination of warehousing all materials into a common area permits allocation of areas to specific materials and packaged products as required.

The overall handling system revolves around a fleet

UNLOADER automatically unloads 3 cases of empties at a time.

PUSHER on fork truck moves cases off forks in rail car; no pallet is used here.



ROLLER-EQUIPPED trailer bed and gate cuts can unloading time.

of industrial trucks comprised of four 3000-pound electric fork trucks, 14 2000-pound fork trucks, two electric tractors, a powerized walkie and a baggage carrier.

As an adjunct to a fully integrated handling system, adjustable dock ramps were provided for safety and speed of fork truck movement into cars and trucks; automatic pallet loaders eliminated manual handling of full packages; the building layout permitted fork truck loading and unloading of rail cars, truck vans and truck beds.

After more than two years of operation, the original concept has proved so sound that no major changes have been made in the basic plan. The efficiency is attested by the fact that all loading can be accomplished on a one-shift basis, even though brewing is a 24-hour-a-day process. According to L. S. Miller, plant manager, this system has enabled the warehouse to be operated at a savings of at least 50 percent over a system that depended upon manual handling.

How Advanced Thinking Paid Off

Here's how Anheuser-Busch's advance concepts and plans operate in actual practice:

Empty containers—either cans, returnable bottles or non-returnable bottles—arrive in cartons and move into the plant either at a truck route right through the warehouse to permit unloading as close as possible to the point of usage or at a truck loading and unloading dock. Shipments by rail are unloaded at the rail sidings and transported into the plant.

When a truck-trailer is driven into the warehouse, palletized loads are picked up directly from the trailer's roller bed by fork truck. When the truck-trailers are located at the dock, fork trucks enter and pick up the palletized loads. At the rail unloading points, a single conveyor transports the volume package (12-ounce returnables) directly to the packaging line. Other packages, however, must be palletized before transportation by fork truck to one of the five throw-on stations which feed a roller conveyor line. The roller conveyor carries the empties to an automatic bottle unloader which removes bottles from cases and transfers them to a soaker where they are thoroughly cleaned and sterilized.

The containers are now ready to move into the actual bottling area to be filled. After filling, the bottles are crowned, can lids are crimped on, and the bottles and cans pass through pasteurizers. Finally, they are labeled, automatically packed by a carton packing machine, sealed by a carton sealer and carried by overhead roller conveyor to pallet loaders in the warehouse.

There are four of these pallet loaders, each fed by a separate production line. They automatically form load patterns and stack cases of beer on pallets. A pallet load consists of 77 cases of cans weighing 1925 pounds, or 42 cases of bottles which weigh 1638 pounds.

Fork trucks pick up these pallet loads at the pallet loaders and transport them either to storage or to immediate loading onto highway trucks or freight cars.

The techniques of automation are so complete that bottles can arrive at the brewery, be unloaded, sterilized, filled, packed, placed in storage and shipped without a human hand touching a single bottle, and with cases being handled manually at only one point.

Both four-way and "take-it or leave-it" type pallets are used. When shipping by highway truck, four-way pallets are used and are loaded directly onto the delivery truck by a fork truck which runs right into the van and positions the load. The average highway truck which carries 20 pallet loads (1126 cases) can be loaded easily in less than 45 minutes by one fork truck.

The "take-it or leave-it" pallets are used to load freight cars. Pallet loads are transported from storage to the railroad loading dock by a tractor train which can include as many as 22 trailers. However, the average train has 14 trailers.

On the railroad loading dock, a fork truck equipped with a side-shifter, pusher attachment and chisel forks is used to pick the pallet loads directly off the trailer-

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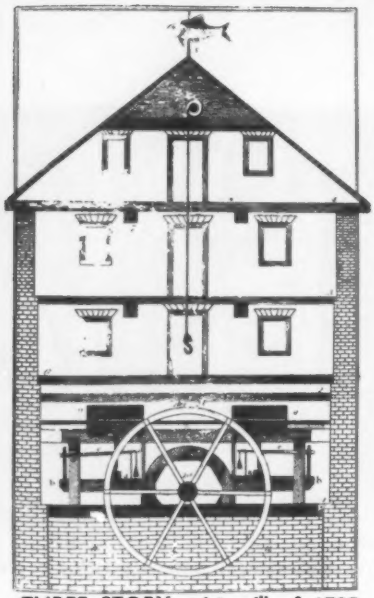


THREE STORY grist mill of 1795, designed as handling machine.

It's elementary:
The one that suits the most efficient handling system usually decides . . .

The Case of Single-Story vs. Multi-Story

By A. T. GAUDREAU, Consultant
Gaudreau, Rimbach & Associates

WHICH type building is best, the multi-story or the single-story? This question has been asked countless times by companies planning new facilities, expanding existing plants, or installing or revamping material handling systems.

There is no pat answer to this question. There are too many factors, such as type of process, material and machinery involved, handling equipment and many others. However, a careful analysis of these pertinent factors, plus an evaluation of the advantages of both types of buildings, will generally give the right answer.

Let's examine some of the advantages and disadvantages of both multi-story and single-story buildings. To point out how they change with changes in processes, materials and equipment, let's review some historical industrial highlights.

The Problem Goes 'Way Back

Soon after the birth of the American factory system in 1790—marked by the establishment of the first cotton mill—Oliver Evans wrote his renowned book on plant design, *The Young Millwright and Miller's Guide.* In it, he describes his three-story gristmill, the first truly automated plant recorded in history.

The machinery in this mill, consisting mainly of shafts, wheels and millstones, was constructed as an integral part of the building proper. Conveying devices moved materials between floors. Thus, one of the first plants in this country was designed primarily as an integrated material-handling machine—a basic handling principle which modern industry is re-discovering in the construction of multi-story buildings.

After the Civil War, continuous-process industries followed this integrated flow principle by designing their plants to take advantage of gravity flows from upper to lower floors. These buildings also functioned as material handling machines.

Present-day continuous-process industries, in which the plant buildings are closely adapted to the material handling needs of the manufacturing processes they house, include sugar refineries, chemical plants, flour mills, packing houses, breweries, ore concentrators and steel-rail mills. In continuous-process plants, material generally flows progressively through a series of machines or processes that operate as an integrated unit and are readily adaptable to multi-story operation.

Intermittent-process industries, on the other hand, consume various kinds of raw materials received in more than 200 distinct shapes of packages or units. These are carried to various stages of processing—usually in successive lots or surges in flow—and are frequently stored temporarily between operations. Examples of this type of manufacturing are common in the metalworking industry, and also include printing plants, shoe factories and lumber mills. The trend toward specialization, however, tends to limit the range of intermittent processes and to emphasize continuous processing.

STRUCTURAL-AREA COMPARISON BETWEEN AN ACTUAL 7-STORY WAREHOUSE AND A SINGLE-STORY BUILDING OF THE SAME GROSS FLOOR AREA

MULTI-STORY BUILDING	STRUCTURAL AREAS	SINGLE-STORY BUILDING
322'-2" x 188'-2" x 7 floors		2255'-2" x 188'-2" x 1 floor
424,361 sq. ft.	TOTAL GROSS AREA	424,361 sq. ft.
AREA LOST		AREA LOST
472 sq. ft.	Columns	224 sq. ft.
1,792 sq. ft.	Elevators	None
854 sq. ft.	Stairs	None
10,208 sq. ft.	Loading Docks	72,064 sq. ft.
10,654 sq. ft.	Outside Walls	4,881 sq. ft.
23,980 sq. ft.	TOTAL AREA LOST	77,169 sq. ft.
400,381 sq. ft.	TOTAL USEABLE AREA	347,192 sq. ft.
94%	PER CENT USEABLE AREA	82%
2¼ acres	LAND REQUIRED	16 acres
$13,500.00	Cost of Land @ $6,000 per Acre	$96,000.00
	PRICE OF LAND	
$ 0.03	Per Sq. Ft. of Gross Area of Building	$ 0.23

CALCULATIONS FOR TABLE ABOVE

Columns: on 10-ft. centers
9" x 9" = 81 sq. in. per column
81 sq. in. x 102 cols. x 7 floors = 472 sq. ft.
Elevators: 7'-9" x 5'-6" x 6 elev. shafts = 256 sq. ft.
256 sq. ft. x 7 floors = 1,792 sq. ft.
Stairs: 9'-9" x 6'-3" x 2 stairwells = 122 sq. ft.
122 sq. ft. x 7 floors = 854 sq. ft.
Loading docks: 319 ft. long inside bldg.
319' x 16' x 2 docks = 10,208 sq. ft.
Outside Walls: 1'-6" in thickness
(322'-2" x 2) + (185'-2" x 2) = 1014' — 8"
1014'-8" x 1'-6" x 7 floors = 10,654 sq. ft.
Land required: inc. 60' strip outside docks
(424,361 ÷ 7) + (319' x 60' x 2 Docks) = 98,903 sq. ft.
98,903 ÷ 43,560 = 2¼ acres
Columns: on 40-ft. centers
1' x 1' = 1 sq. ft. per column
1 sq. ft. x 224 cols. = 224 sq. ft.
Loading docks: 2252 ft. long
2252' x 16' x 2 docks = 72,064 sq. ft.
Outside Walls: 1'-0" in thickness.
(2255'-2" x 2) + (185'-2" x 2)
= 4881 sq. ft.
Land required: inc. 60' strip outside docks
424,361 + (2252' x 60' x 2 docks) = 694,601 sq. ft.
694,601 ÷ 43,560 = 16 acres

TABLE 1: Limited approach to selection problem is illustrated here, where only a small fraction of all possible factors are properly considered and evaluated.

In recent years, conveyors have leveled off interfloor handling in intermittent industries by supplying inclined transportation on a continuous basis between basement and roof. This type of continuous handling system may be charged or discharged at any point along the conveyor's run, and it completely by-passes elevator service.

The Case for Multi-Story

Multi-story buildings, when properly constructed and operated to provide a building-wide coordinated plan of material handling, possess certain distinct handling advantages over one-story structures.

These include:

A. *Capital Investment*

1. Require less ground area and permit more efficient use of land space available.
2. More production and storage capacity can be built on given size of plot.
3. Less investment required for material handling devices because of shorter travel distances.
4. Permit easier isolation of quarters for special control of humidity and temperature.

B. *Cost of Operation*

5. Less heat loss through smaller roof area.
6. Lower power and air-conditioning cost because of more compact arrangement and concentrated use on each floor.
7. Lower cost of lighting because of more window space per area occupied by each floor.
8. Lower plant protection cost because of fewer first-floor doors and windows.
9. Lower building upkeep because of less wear on upper floors and smaller expanse of roof.
10. Less material handling cost because of shorter moves from floor to floor, compared to wall-to-wall movement in single-story buildings. Also, cost of handling by gravity feed and vertical lifts is lower than by crane.
11. Smaller in-process inventories because of localized work distribution on each floor.
12. Upper stories are usually free from noises, odors and dirt.

C. *Production Facilities*

13. Reduce process time by a better coordination of operations within a confined floor area which lends itself to better production control.
14. Permit continuous engagement of machines and workers by making possible a rapid, endless flow of material over shortest dis-

(More on next page)

tances because of automatic inter-floor transfers.

15. Provide straight-line progression of material movement from floor to floor by gearing proper types of conveyors, lifts, gravity slides and spiral chutes, as well as hoppers, into a coordinated building-wide handling system.
16. Permit a better control in flow of material and maintenance of stock inventories because of more compact layouts made possible by vertical arrangement of floor areas. Storage areas can usually be located much closer to production centers.

D. *Material Handling Activities*

17. Shorten material travel by eliminating long hauls.
18. Permit material to move forward by the shortest and straightest route by eliminating back-tracking and cross-handling often unavoidable in one-story structures.
19. Make possible gravitational handling between floors by gravity slides and spiral chutes.
20. Permit receiving material at high level on sloping ground and shipping out of lower floor, thus avoiding confusion and congestion, and permitting gravitational flows to loading docks.
21. Enable plant or warehouse to transport material above traffic to other buildings in plant yard, above railroad tracks, and overhead to buildings across a street.

Even more important than many of these advantages is the fact that the very height and integral construction of multi-story buildings make it possible for them to permit the use of virtually all types of material handling devices, except large overhead traveling cranes. Single-story buildings, on the other hand, can accommodate only horizontal movements of material within prescribed areas to avoid costly "joy-riding" of mobile equipment when long expanses of travel are available.

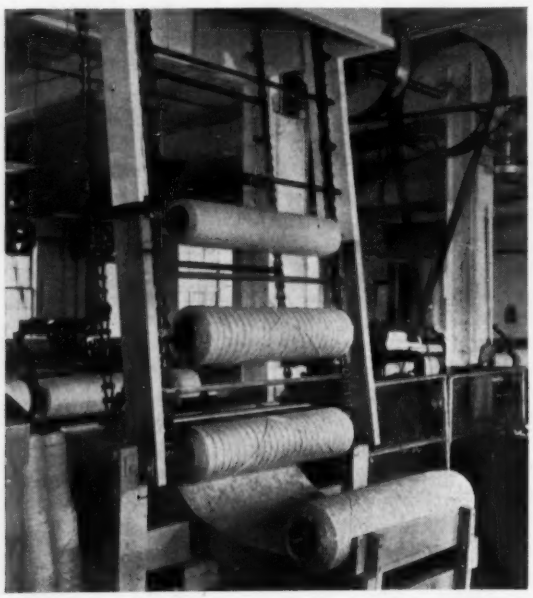
The Case for Single-Story

The widespread swing to single-story buildings during World War II, particularly in the defense industries, disclosed a number of material handling advantages over multi-story buildings, considering the types of inter-floor handling devices available at the time.

Some of the more significant advantages of this type of building are:

A. *Capital Investment*

1. Usually constructed in suburban areas where land values are lower and plant sites larger than within city limits.
2. More adaptable to plant expansion, which usually can be made from at least three sides of a rectangular foundation.
3. Require less time to erect (sometimes one-third less).
4. Usually cost less per square foot of floor space to construct (sometimes one-third less).
5. Require no floor space for elevators and stairs, need fewer columns. However, this saving may be offset by usual need for longer receiving and shipping docks because of longer side walls.
6. Less exacting soil requirements for foundations.
7. Have no floor-capacity problems.



ABOVE: Gravity slide for sacks and spiral chute for bundles are both used for transfer from upper floors.

LEFT: Continuous inter-floor handling by chain conveyor has empty spools going up, full ones down.

B. *Cost of Operation*

8. Make possible better utilization of daylight and natural ventilation.
9. Eliminate repairs to elevators and stairs.

C. *Production Facilities*

10. Provide greater floor-bearing capacity and less vibration where heavy machines operate.
11. Provide greater flexibility in making changes in plant layout, due largely to absence of restricting walls.
12. Offer greater possibilities for efficient layout of straight-line production.
13. Sometimes save supervisors' time in calling at various production centers.

D. *Material Handling Activities*

14. Have no structural restrictions to installation and operation of high-lifting, cab-operated, overhead traveling cranes.
15. Afford lower material handling cost for heavy stock and apparatus than when handled on upper floors in multi-story buildings. Weight and shape of some products (electrical apparatus, machine assemblies, large castings, steel-mill products), which sometimes require 100-foot bays and three-story cranes, make one-story structures mandatory.

Experiences gained in single-story establishments since the early 1940's, plus the re-appearance of some of the advantages formerly enjoyed in multi-story structures, provide additional factors which determine the selection of one over the other. A re-appraisal of the multi-story building has tended to bring it back into favor over the one-story structure in many cases. Much of this return swing of the pendulum is due to improvements in material handling equipment.

Limited floor-loading capacities have been largely overcome by a re-arrangement of layout and the introduction of conveyors and lightweight powered trucks. Limited ceiling heights and other structural impediments to modern mechanized handling have either been removed or corrected in existing structures and avoided in new ones.

Make Your Own Decision

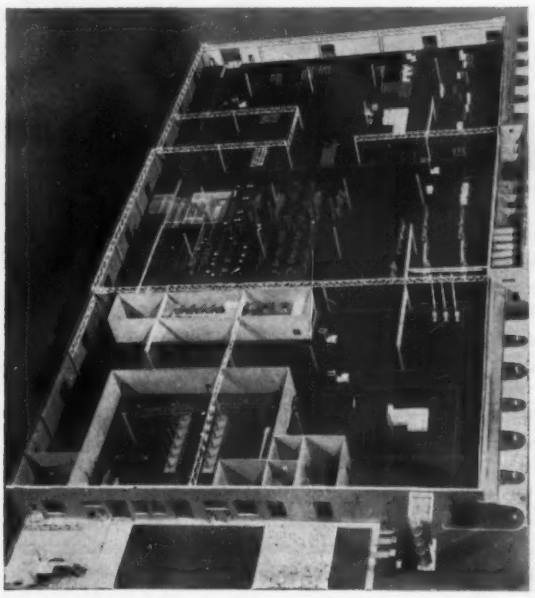
There is no single formula which may be applied in choosing between these two types of buildings from a material handling standpoint. As previously pointed out, the building is, in essence, a machine designed to expedite the flow of raw material and work in process through the production cycle of the industry it houses. In modern factories, the production layout determines the building type.

Only in old buildings does the building type determine the production layout, and then only in cases where structural limitations preclude the economic justification of adapting the building to the manufacturing process. Large cavernous structures for housing plants or warehouses not laid out to operate at minimum cost after the buildings are finished are no longer being constructed. Today, operating cost is another prime factor which determines the type of building to construct.

As frequently happens, however, not all the factors in favor of multi-story buildings, or the corresponding list in favor of single-story units, are properly considered and evaluated to arrive at a correct net balance for one or the other type. Usually, only a small

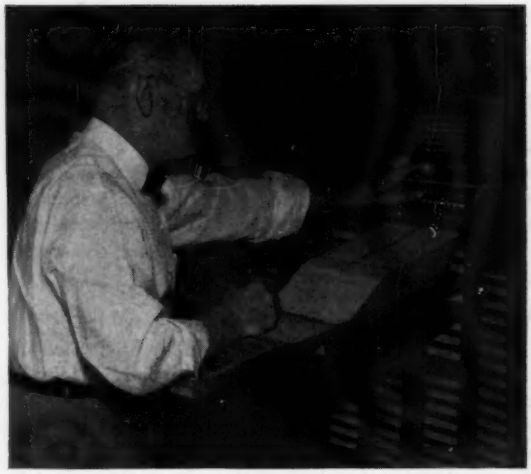
(Continued on page 128)

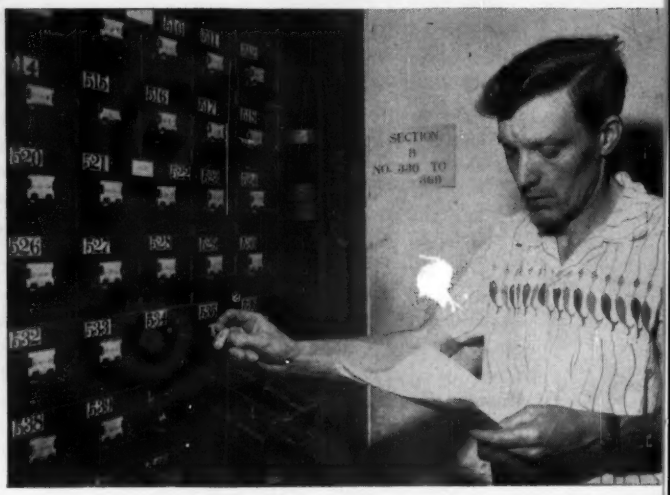
ABOVE: Inclined, floor-to-floor belt conveyor also is used to level out handling from first to second floor.



RIGHT: One-floor layout has many advantages of its own, including lower handling costs for heavy products.

By E. A. Landry, Secretary
Oliver H. Van Horn Co., Inc., New Orleans, La.





ABOVE: Following precise, written instructions, warehousemen make no mistakes, require minimum training. RIGHT: Intercom on record cabinet provides constant service for customers and staff.

RECORD CONTROL for Stock Control . . .

. . . simple, uniform procedures under which every action from buying through stock selection is carefully, accurately controlled.

IF THERE IS ANYTHING WORSE than a wholesaler being out of an item, it is having it on his shelves and not being able to find it.

Both out-of-stock and misplaced stock situations can be kept to a minimum, however, with the clamping of tight audit controls on inventory and stock usage records. Stock records, we believe, are at least as valuable to the wholesaler as his bank account and should be balanced and controlled as carefully as his checkbook.

The importance of these records increases with the size of the operations they control. When an organization grows to the size of ours at Oliver Van Horn Co., Inc. we are convinced that up-to-date visible controls are an operating must.

Founded in 1903 by Oliver H. Van Horn, our firm has grown continuously through three generations of service to flourishing industries in the south and southwest. Today, our home office in New Orleans stocks between 16,000 and 17,000 separate items of industrial equipment, machine tools and supplies. In addition, fully equipped branches in Fort Worth, Houston, Baton Rouge, Shreveport and Mobile carry somewhat smaller stocks in local operations geared to meet the needs of industries in each individual area.

Under this setup, our New Orleans office has developed into the hub of a multi-million dollar, diversified service operation. To achieve the degree of control necessary to function within reasonable cost tolerances in this spread-out situation, we found it best to center the responsibility for purchases at a single executive desk.

Then, realizing fully the dangers of having most of the important internal functions of the organiza-

(Continued on page 116)

INSIDE JOB is easy for mobile crane which lowers boom to enter shop and help position maintenance work.

For operations inside and out, a progressive company discarded traditional methods to . . .

Simplify Those Odd-Size Handling Jobs

REDUCED COSTS and speedier flow of hard-to handle materials. These are just two of the benefits gained by the Pennsylvania Power & Light Company's System Storeroom, in Hazleton, Pa., with the help of modern, mobile handling equipment.

The System Storeroom—centrally located in the company's service area—maintains an inventory to replenish stocks at subsidiary storerooms, supply some material for large construction jobs throughout the company's territory, fill local requirements in the Hazleton area, and insure an adequate back-up emergency supply for the other storerooms in the system.

In addition to the System Storeroom, the system includes six division storerooms (at Allentown, Pottsville, Williamsport, Harrisburg, Lancaster and Scranton), seven district storerooms (at Hawley, Wilkesbarre, Mt. Carmel, Sunbury, Bloomsburg, Carbondale and Pittston), 52 unattended storerooms, and nine power-plant storerooms.

The entire system is geared to maintain dependable electric power for 690,000 customers spread over a 10,000-square-mile area. There can be no breakdown in the supply of critical materials. A self-propelled hydraulic crane plays a key role in maintaining this supply.

With a capacity of 5 tons, the crane is equipped with an 18-foot telescoping boom which can be ex-

(More on next page)

Simplify Those Odd-Size Handling Jobs

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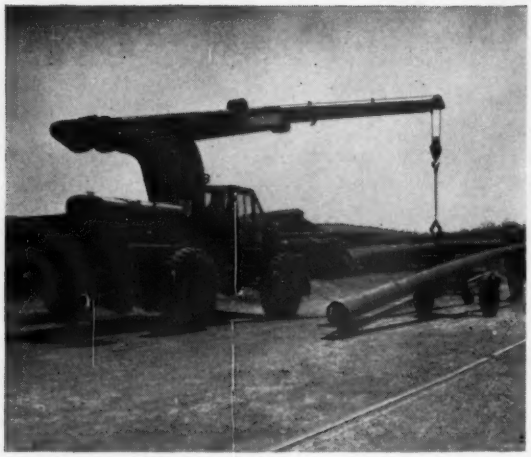


LOADING POLES on "dinky" trailer is job which saves labor, as high-priced line crews used to do it.

tended or retracted, rotated continuously through a full circle and raised or lowered between horizontal and a 66-degree angle of elevation.

In the System Storeroom's yard, the crane unloads poles and crossarms from incoming freight cars, loads poles on "dinky" trailers, unloads transformers, places them in storage and removes them for service, and handles cable reels weighing up to 3000 pounds. However, the equipment was purchased primarily to handle poles. It has produced dramatic savings in time, space and money in doing this job.

Old Way:

Formerly, poles were rolled from incoming freight cars onto racks beside the railroad spur. This system unloaded cars rapidly, but slowed every other operation involving the poles. The racks took up too much space, an area 450 by 30 feet. They made the use of storage space inflexible because the poles had to be stored in parallel rows next to the railroad tracks. Occasionally, poles were received in random sizes and were unloaded and stored unsorted.

After a load was rolled from a freight car, the poles had to be winched into orderly positions on the racks. To unload a car carrying 60 poles usually took four men a full 8-hour day. Poles used in the field were removed from storage by highly-skilled line crewmen. They used the winch-cable mounted on their field service trucks to remove a pole from the pile and place it on a dinky. Poles frequently were damaged and sometimes broken because the pole racks were not far enough apart to allow adequate clearance for all poles.

New Way:

The hydraulic crane changed the pole-handling system completely. Now, poles are neatly arranged in stacks at right angles to the railroad track. They are segregated according to size, thus speeding accurate inventory. Also, they are placed so that the poles that have been in storage the longest are used first. Pole storage space has been reduced about 15 percent and poles can be stored at any convenient location in the yard.

To unload a freight car, the self-propelled crane takes a position between the freight car and the pole rack. It lifts poles and places them in the rack, one at a time, at a rate of about one every two or three minutes. In two or three hours, the crane operator and two helpers can unload and properly position the poles from one fully-loaded freight car.

Further savings are realized by loading pole-trailers for the line crews. The crane operator and one helper can load a pole on a dinky in about 15 minutes. When the line crew calls for the trailer, it is fully loaded and ready to roll.

The company reports the crane has made the storage yard handling of poles an exclusive function of the stores department. This elimination of participation by other departments—such as line and construction crews—reduces the hourly cost of loading poles for installation.

The present method of handling crossarms is the result of a study made to reduce costs and increase efficiency. The System Storeroom found that crossarms could be handled more safely, with greater efficiency, and at lower cost if they were purchased in bundles of 24 to 48 rather than in bulk.

The initial cost per crossarm, delivered to Hazleton, is slightly higher, but this is more than offset by a lower handling cost. When crossarms were delivered in bulk, four men needed a day to unload a single carload.

When crossarms are delivered in bundles and unloaded by the crane fitted with a loop sling, three men can unload the same quantity in 3 hours, a reduction from 32 to 9 manhours. In addition, this method eliminates the hazard of creosote burns on hands, arms and faces experienced under the old system when the crossarms were handled manually.

Cable reels also are handled by the crane. Most of them are stored outdoors, stacked end to end in rows.

FORK TRUCK handles bundled wood crossarms, transfers them from storage to service trucks for field use.

UNLOADING crossarms from freight cars, the crane fitted with loop sling quickly places them in storage.

Incoming reels are unloaded from freight cars or trailer trucks either by fork truck or with the crane. For this job, the crane's telescoping boom is lowered to horizontal and then used to reach into box cars or trailer bodies.

Extra Benefits:

As busy as the crane is outdoors, it is equally useful in the shops. A complete repair depot is maintained at Hazleton, and flow of equipment in and out of the shops is constant. With its boom lowered to the horizontal, the crane can easily enter the shops with a piece of equipment hung from its cable hook. Using the four-wheel steer and the swiveling boom, it can spot equipment quickly and exactly where the mechanics want it.

The crane is frequently used to turn or re-position work in the shops. For example, a large transformer tank was welded recently. The crane drove into the shop, held the tank cover as it was clamped into place and then turned the cover over for final welding.

In fact, there is scarcely an area or type of work involving the lifting of material in which the crane is not used to good advantage. Placing steel rod, angles and bar stock in storage racks used to be a cumbersome and time-consuming job. Now, with the crane operating inside the warehouse, the job is easy, fast and safe.

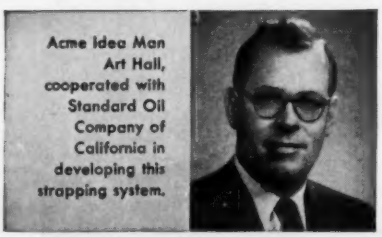
On two occasions, the crane was used in the field to install equipment. Most installations can be handled by the derricks mounted on each service truck. However, in these two instances, transformers too heavy for the service truck derricks had to be installed. Because the crane wasn't licensed for highway operation, it was towed to the installation sites, lifted the transformers into place, and was then towed back to the Systems Storeroom.

Photos and data courtesy Austin-Western Works, Baldwin-Lima-Hamilton Corp.

UNLOADING TIME for poles has been cut drastically by using crane; operation has been greatly simplified.

Check your AIM*... Standard Oil Company of California did...

Steel Strapping Machine aids fast, efficient packaging



Acme Idea Man Art Hall, cooperated with Standard Oil Company of California in developing this strapping system.

STANDARD OIL COMPANY OF CALIFORNIA, Richmond, includes an Acme Steel Semi-Automatic Model F-1 Strapping Machine in their fast, conveyorized packaging procedures to reinforce cartons of molded wax blocks. (Idea No. S1-1.)

Formerly, three men at separate strapping stations strapped 1600 cartons per production run with manual tools. Now, one man using the F-1 Semi-Automatic machine straps 1900 cartons per run, releasing two men for other plant work.

The Model F-1 makes important contributions to any modern packaging system. The operator simply feeds strap . . . push-button operation tensions, welds and cuts. And the Model F-1 applies strap with uniform tension, makes strapping fast, easy, economical and efficient.

***CHECK YOUR ACME IDEA MAN.** Located near you, he can help you get production-line packaging efficiency. Call or write Dept. FDS-87, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois.

ACME STEEL **STEEL STRAPPING**

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No matter what kind of product

PACKAGING AND SHIPPING SECTION

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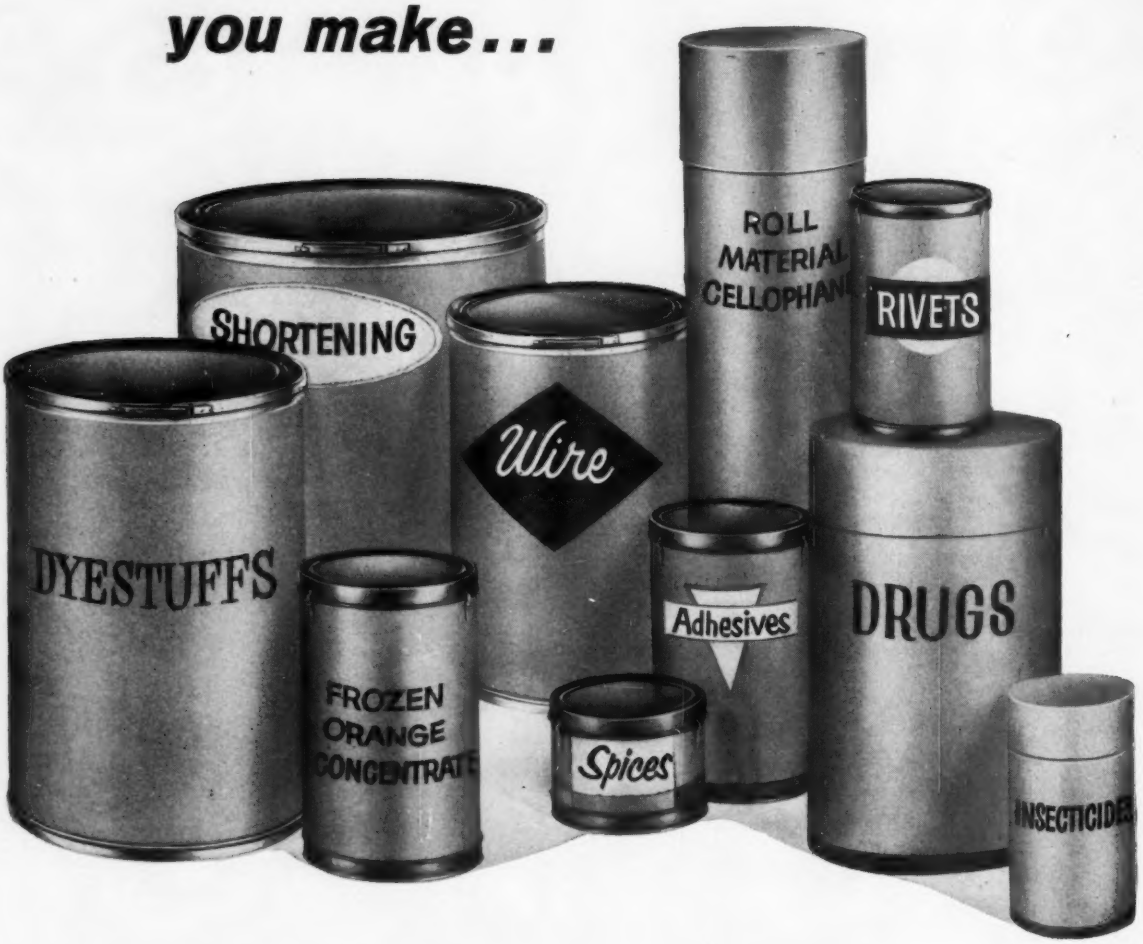
No matter what kind of product you make...



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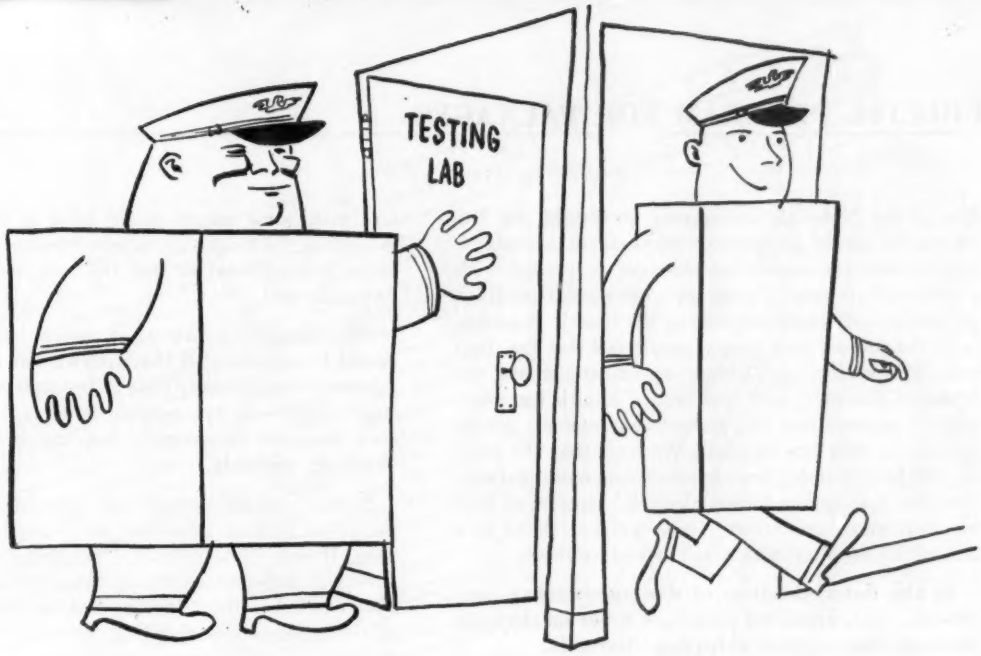


Reducing Program For Air Force Packages

by Edward H. Schell
Materials Laboratory
Wright Air Development Center
Wright Patterson Air Force Base

Ever since man first developed a protective package, the question of the degree of protection needed has plagued the designer. At first, the answer was arrived at by the results of practical experience. If a packaged item was damaged, then it was obviously necessary to increase the protection. If the item was not damaged, the package was considered adequate.

Later, it became evident that it was necessary that we consider other functions of the package. To us, the two most important of these functions are convenience and cost. Consideration of these two functions causes a basic change in the approach of the package designer.

The designer can no longer assume that, because an item is not damaged, the package is adequate.

Under the conditions now imposed, he must achieve an optimum balance of the protection, cost and convenience functions. He must keep cube weight to a minimum to reduce cost and afford convenience in handling and storage. The original question, "How much protection?", has become the modern designer's problem of "How little protection?".

Unfortunately, we still use a most primitive means of answering this question—that is, practical experience. If a package is too large or too heavy for the convenience and cost functions to be met, the designer changes its size and weight until the optimum conditions of protection, convenience and cost are found. He has some engineering tools to help him, but the process is still mostly hit-or-miss.

Scientific information on the actual causes of damage can eliminate much of the costly and time-consuming package designing that goes on today.

If the package engineer were able to predict exactly what would happen to a package during its life, he would be able to use the engineering tools available to design a package which would meet the optimum requirements. With that in mind, the Packaging Sec-

tion of the Materials Laboratory at Wright Air Development Center is currently engaged in a research project that will enable the designer to predict with a reasonable degree of accuracy what shock conditions a package will encounter during the time it is in use.

At the present time, many people feel that the drop test requirements of Military specifications are unrealistic. However, with the limited knowledge available, it appears that the present requirements are as realistic as they can be made. We hope that our project will help to make these requirements more realistic. Our aim is to gather statistically valid samples of field handling shock conditions. These will be related to a laboratory drop test which will reproduce them.

In the determination of damage-causing conditions, instrumented packages must be shipped through the regular shipping channels.

Our first consideration, therefore, was instrumentation.

The work of others who are attempting, or have attempted, research projects to measure these conditions was investigated. One simple mechanical device, however, seemed to offer some possibilities. It consists of three spring-mass elements, with stylii attached, which record shocks on a paper tape. The tape is advanced by means of a shock-actuated rachet arm. Each of the three stylii are actuated by a different force: One reacts to shocks acting in a direction parallel to the horizontal axis of the instrument. Another is actuated by a shock parallel to the vertical axis. Between them is a third stylus which is actuated by a shock acting in a directional parallel to the transverse axis of the instrument. In most cases all three stylii are actuated by a shock of random direction and each individual stylus records the component of shock in the direction mentioned previously.

We found that when the instrument is rigidly mounted it responds to shocks of varying frequencies according to the magnitude and frequency. Since this was true, some means would have to be found for measuring the frequency, or else frequency would have to be held constant so that the recorded data would be meaningful.

We already know that more useful results could be obtained if the instrument in the package were cushioned. This is because the cushioning system always responds to a shock at its own natural frequency, leaving magnitude as the only variable.

Several cushioning materials were investigated and discarded because there was still variation in the results. It was discovered that the frequency response varied at different angles of incidence of the shock. This fact led to the discovery that the spring constant of the cushion was changing with the angle of incidence.

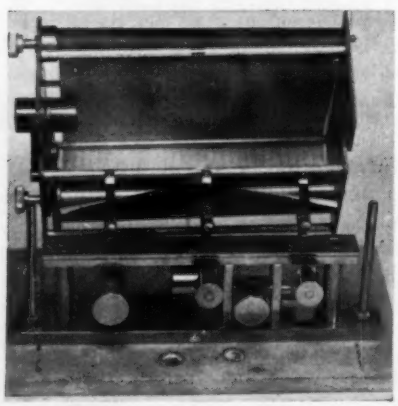
To overcome this problem, a cubical spring suspension system was designed to cushion the impact recorder. With that system the spring constant is the same for all angles of incidence and the system always responds at the same frequency.

Our next problem was to determine what the frequency of the suspension system should be.

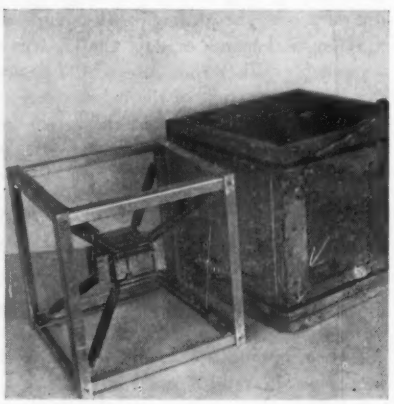
In order to determine this frequency, the natural frequency of the recorder had to be determined to avoid a condition of resonance. We determined that frequency to be 25 cps and reasoned that we would be safe to cushion the instrument at a frequency of 12.5 cps.

With this design data, a laboratory model was constructed and tested. The impact recorder was calibrated through a series of 18 flat drops—once on each of three faces at heights of six, 12, 18, 24, 30 and 36 inches. With this information, a calibration curve was obtained for each of the three stylii.

Our recorder is calibrated so that the deflection of the instrument can be measured and this value used



IMPACT RECORDER used in air force tests is shown in exploded view (left). Three spring-mass elements, with stylii attached, record shock on paper tape. Spring suspension system and cleated plywood container (right) solved difficult problem of varying frequency response.



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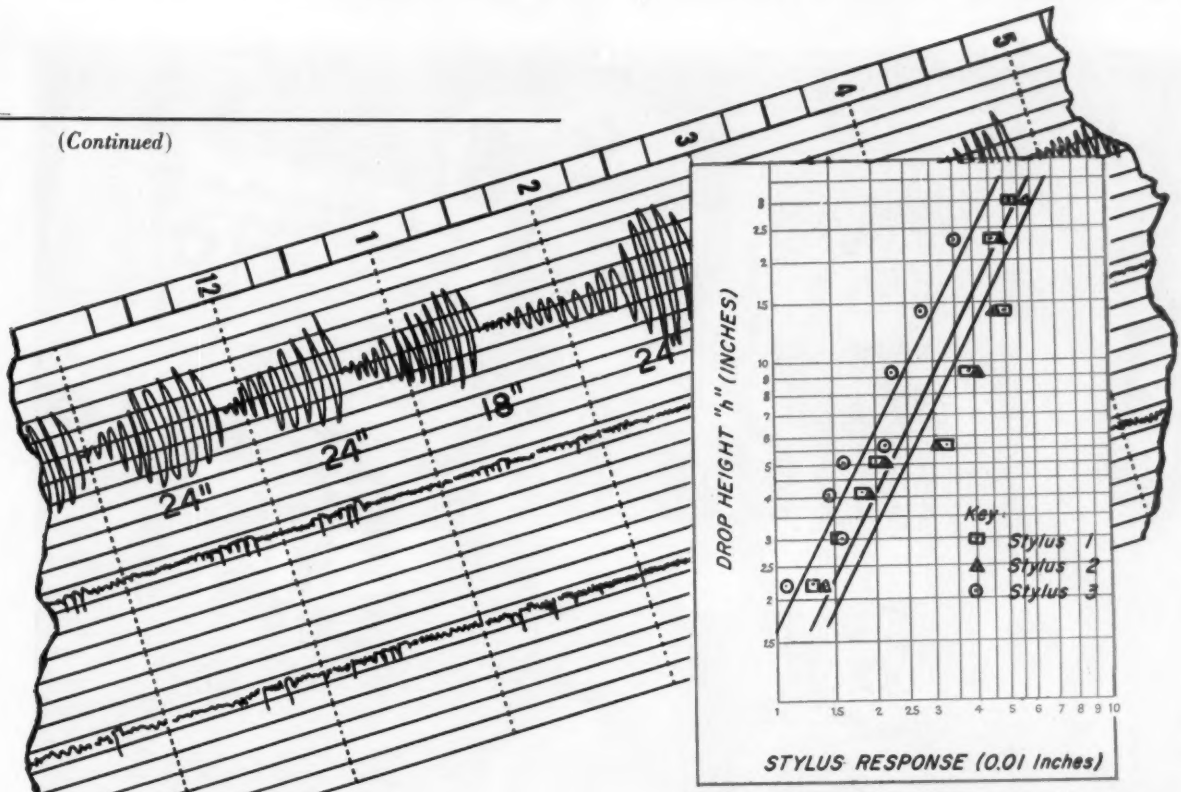


SAMPLE RECORDER TAPE traces flat drops activating stylus Number 3 while the other two stylii record relatively straight lines. Drop calibration curve is illustrated on chart in inset.

to obtain the drop height from the curves. The curves follow the mathematical analysis so closely that the relationship was used to draw the curves.

That relationship is:

$h = Kd^2$

where: h = inches of drop height
K = a proportionality constant
d = hundredths inches of stylus deflection

When plotted on log paper, this equation is a straight line with a slope of 2.

The recorder was dropped from known heights throughout the range of the instrument in a series of edge drops and a series of corner drops. We determined that if the instrument was accurate, the data on the tape, when measured and converted to drop height using the calibration curves, should give us the known drop height. The results were within reasonable accuracy. At this stage of development, we had reached a point where we were able to let a contract for design and construction of 50 spring suspension units, and 50 impact recorders modified to our special requirements. The containers are being built at Wright Patterson Air Force Base.

Purdue Research Foundation will act as consultants in preparing the statistical sampling plan. At present, they are at work deciding what calibration accuracy the instrument should have. Accuracy can be obtained by increasing the number of shipments or by having a highly accurate calibration curve.

Logically the best way to obtain the desired accuracy will be by the least expensive method.

Whether we should make a large number of calibration drops and a small number of shipments or vice versa will be determined on a cost per drop vs. cost per shipment basis, using decision theory techniques. The statistical sampling plan will be designed to get a cross-section of all transportation shock conditions within this country as the first phase. Later work will include the whole world.

When Purdue completes the statistical plan, and the instruments are calibrated, shipments will be made through the usual Air Force channels. Data will be reduced by means of electronic equipment. The tapes will be read on an electronic reader. The results of the readings will be automatically recorded on punch cards. These results will then be fed into a computer which will compute the drop height by a mathematical formula determined from the calibration curves.

Using this data, a curve of drop height versus number of drops will be constructed. From this curve it will be possible to rewrite the drop test requirements of Air Force specifications.

Editor's Note: First shipments are due to be made in the near future. Results should be available shortly thereafter. Watch for a report on them in FLOW.

NEW FMC BARREL LOADER

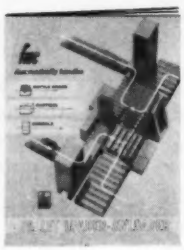
455 LB. DRUMS, 120 LB. KEGS AND 35 LB. PAILS ALL PALLETIZED BY ONE AUTOMATIC MACHINE

DISCARD YOUR OLD IDEAS about having to man-handle barrels, drums, kegs and pails. Automate for profits! Palletize your load automatically.

HOW? Your best bet is this modern barrel loader made by Food Machinery and Chemical Corporation. Engineers at the Pittsburgh, Penna., grease plant of the Esso Standard Oil Company, for example, handle 3 different sizes and weights of drums on their FMC barrel loader. They state these advantages: 1) assurance of lower production costs; 2) saves production floor space; 3) versatility in performance; 4) no damage to materials handled; 5) saving in manpower.

These and other savings can be yours, if you are handling more or less uniformly packaged products. FMC materials handling equipment is successfully and automatically handling cases of beer, soft drinks, and cereals and grains, as well as drums and barrels.

What's your materials handling problem? FMC can automate your production line around FMC automatic pallet loading and unloading machines. You'll get increased production, you'll give better customer service, you'll save manpower.



Write for NEW BULLETIN →

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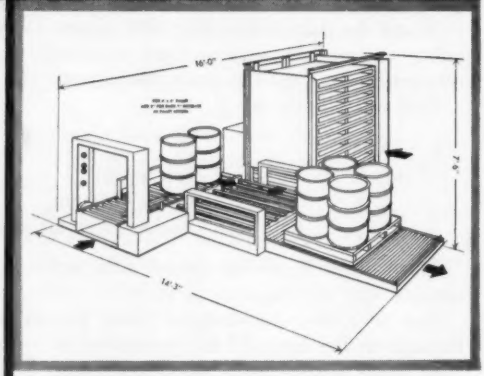

MORE FACTS ABOUT THIS NEW FMC BARREL LOADER (Model 389000 for Drums)

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Optional pallet patterns possible
Pallet dispenser, once filled, is automatic
Handles 48" x 48" pallets; conventional or 4-way
Pallet load: 3000 pounds max.
Capacities: 30 gal. and 55 gal. drums loaded at 6.2 per min. 4 to pallet
120 lb. kegs loaded at 10.8 per min. 9 to pallet
Safety-first design—Workhorse construction for continuous service
Eliminates man-handling materials
Write for information: Include pallet size and pattern styles

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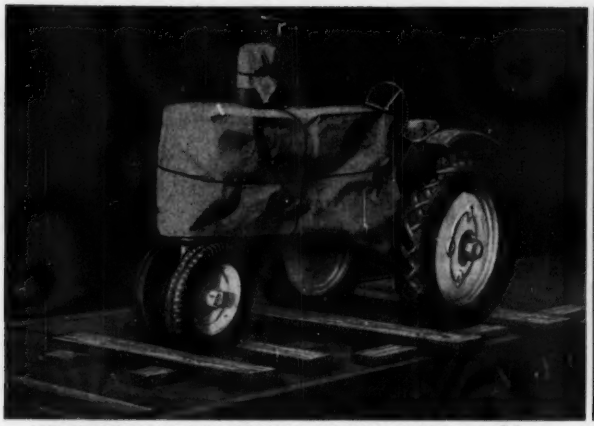

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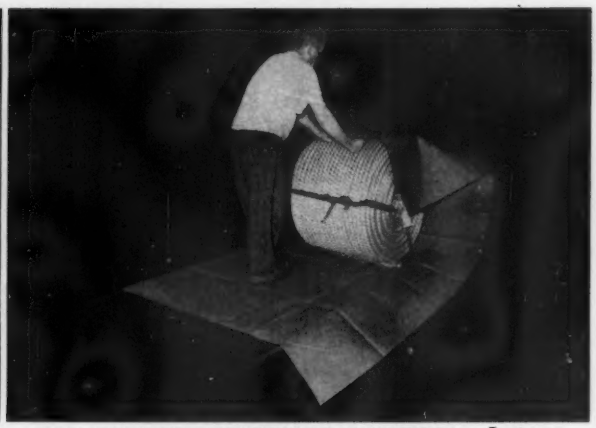

FOR BETTER MOISTURE CONTROL Just as waterproof Fibreen keeps undesirable moisture out — it keeps necessary moisture in — as when shipping rope, leather, plastic clay, etc.

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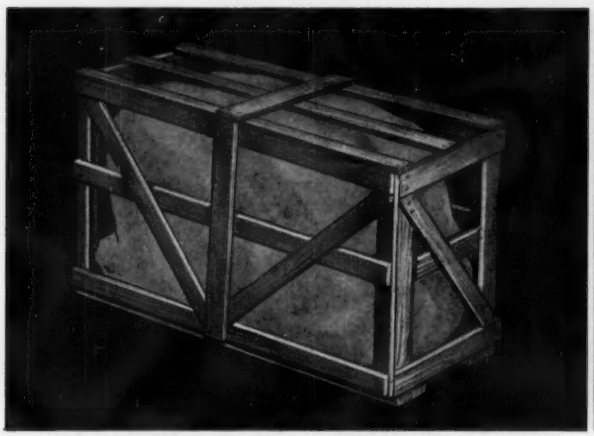

A CRATE INSTEAD OF A CASE Machines, motors, other odd shapes wrapped in Fibreen *can* be shipped in crates thus reducing packing costs and shipping weights.

IDEAL FOR MAKING PACKAGES Small machine parts and similar items are protected better when shipped in packages made with Fibreen. Try it!

Fibreen products are available in a variety of combinations . . . asphalt and non-asphalt laminants, flat and creped krafts, and a selection of strengths. Most *any* widths to fit *your* packaging problem are made. Write to our main office, American Sisalkraft Corporation, Attleboro, Mass., for name of nearest Fibreen jobber, sample and booklet on packaging.

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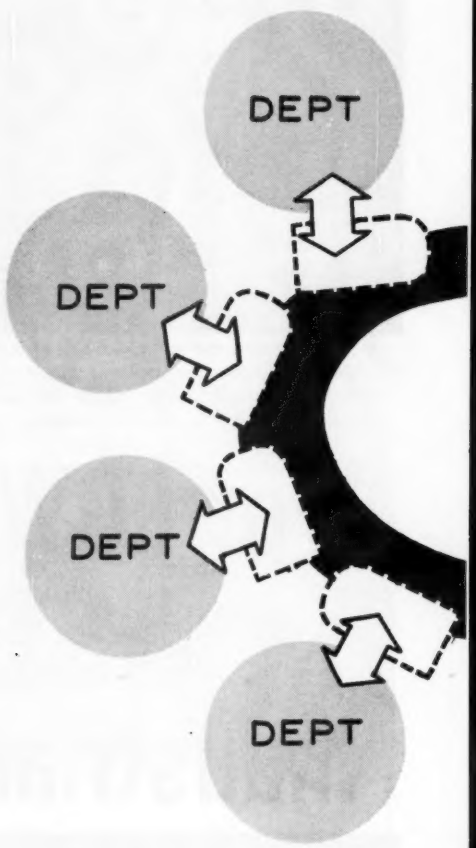
Tremendous industrial expansion in recent years has brought a fly into the production ointment. Smooth handling of increased production, without hampering production rate has becomes more and more difficult. Here's a concept which promises to maintain efficiency in handling of parts through packaging no matter how great the production increases.



Take the Packaging Line to the Product

by R. D. Gillis
Research Engineer
L. A. Division
North American Aviation, Inc.

HOW DO YOU GUARD against bottlenecks when you increase production rates? Various material handling systems have been devised, utilizing improved and occasionally highly specialized machinery.

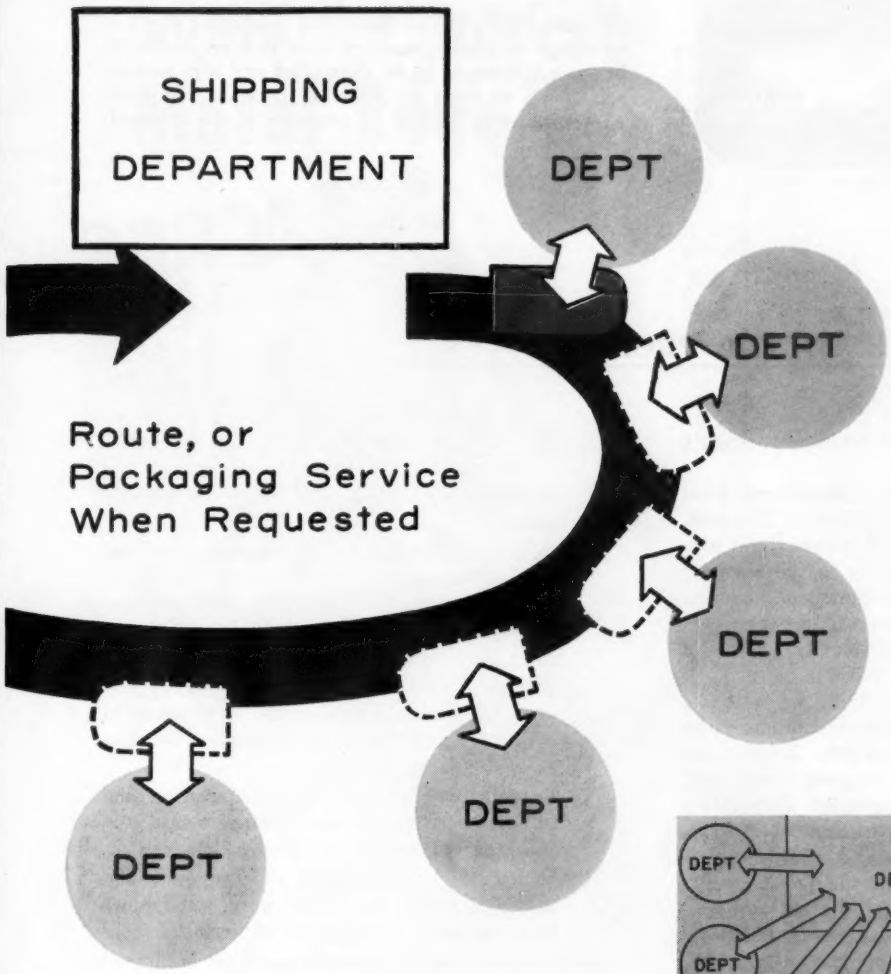
Automation has compensated for expansion in some instances, but, in the words of W. R. G. Baker of General Electric Co., "Increased industrial production will not come solely from automation but in most instances (from) simplification."

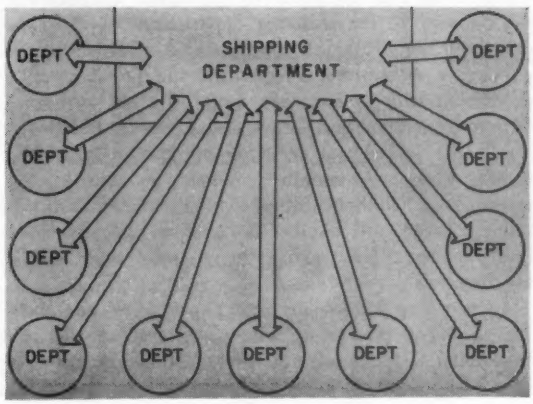
The high degree of success achieved thus far is a tribute to the efforts of the material handling engineer. However, if the predicted increase of 40% in production by 1966, with only 14% increase in manpower, proves to be accurate, then even greater efforts will be necessary. Perhaps completely new engineering concepts will be required to inject new enthusiasm into weary and somewhat stylized programs.

One such new concept could be a Mobile Packaging Unit which will package parts and assemblies at the point of fabrication to eliminate the necessity for movement of parts to a central packaging or shipping department. This method of packaging, while not completely new, has never been perfected to a point considered satisfactory to industry and has only been used in isolated instances. It is believed in one aircraft corporation, however, that point-of-origin-packaging, by use of a mobile packaging unit, has merit. If perfected, the method will assist greatly in overcoming the tremendous industrial expansion problems existing today.

While the detailed design features of the mobile unit could be left to the discretion of the firm employing it, the unit should be thought of as an integrated system. Its personnel should have at their disposal all materials necessary to fulfill the packaging requirements of the products made in the plant. Coordination of the unit with the shop may be handled by the dispatcher system or milk-route type system, with the unit providing its services at regular intervals at designated locations. Or the coordination may be effected by a combination of the two systems.

Several problems confront the previously mentioned aircraft company in its investigation of the mobile unit. Numerous aircraft components, manufactured at various points throughout the plant, must be channeled



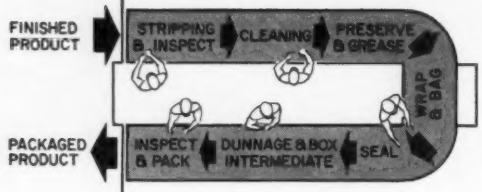


MOBILE PACKAGING UNIT, above, follows a predetermined route from department to department, or provides packaging service on demand. It eliminates many handlings and inspections necessary in many current systems where each production line sends its product directly to the shipping department (right).

from the manufacturing area through the maze of inspections and paper work, into a properly labeled package which affords needed protection. The problems which arise in the control of the manufactured articles are as much administrative as they are operational. The cost of control paper work, in many instances, represents a high percentage of the total cost of the part. The mobile shipping method under investigation will, with proper coordination, accomplish the complete preservation, pacakaging and identification of the parts at the point of manufacture with a minimum amount of handling.

To understand how the mobile packaging unit may be employed let's look at a typical example: A certain quantity of part "A" is requested of a manufacturing department with a specified delivery schedule. Normally, ample notice is given this department in order that it may deliver the parts on schedule. The order which we are discussing is designated as a spares item and, as such, will receive protection for shipment to the service concerned. A specific storage period is also involved.

Here is how the parts are handled now. When the total quantity of parts, or a specified portion of the order, in accordance with the delivery schedule, has gone through each of the steps of manufacture (fabrication, assembly, painting, etc.) the last step on the traveler (planning ticket) indicates it will be trans-



DESIGN FEATURES of the mobile packaging unit can be suited to specific needs of each firm employing it. In general it should be an integrated unit with personnel having at hand all materials necessary to fulfill packaging requirements of products made at plant.

TAKE THE PACKAGE TO THE PRODUCT

(Continued)

ported to the shipping department for final packaging and delivery.

Before being sent to the shipping department, however, it must be accepted by shop inspection. The total, or a specified quantity of parts, is grouped and protected in some way for its journey to the shipping department. This protection may consist of bundling with tape or string, wrapping the parts in paper, bagging the items collectively or individually, or it may simply involve loading the parts into tote boxes.

Bear in mind that this preparation, or protective measure, is also accomplished at each different point in the process of manufacture. It is done for only one reason—to get the parts to the shipping department, where they will be properly packaged. Preparation for delivery to the shipping department is often the responsibility of personnel unfamiliar with protective packaging techniques. Frequently, the result is over protection with unnecessary material costs, or insufficient protection and heavy damages. In either instance the job almost certainly becomes a time consuming and costly operation. When you consider the tremendous number and variety of items that are manufactured and handled in this manner by most large concerns you realize the gigantic costs which are involved.

In the shipping department paper work necessary for shipment is created. The parts proceed through inspection, segregation and preservation areas before arriving on the packaging line where protection for shipment is applied. At each station it is necessary that the quantity of parts be checked and that they be inspected for damage and conformity to specification. The proper wrapping, cushioning and containers bearing proper identification are phased in with the flow of parts to maintain a smooth operation.

The mobile packaging concept would alter the above picture and produce the following advantages:

(1) Elimination of the need for transporting rejected parts back to the manufacturing department and then again to the shipping department after repair.

(2) Elimination of multiple inspections (which consist primarily of counting parts) in the course of an item's travel through sections of the shipping department.

(3) Reduction of damage to parts due to unprotected handling in transit.

(4) Reduction of loss of parts by proper consolidation of lot.

(5) Removal of the packaging responsibility from the fabrication department and placing it in the hands of trained packaging personnel who understand the problems involved and can create a better package at reduced costs.

(6) Reduction of the necessity for stocking and using various materials in the shop solely to protect the part during its travel from the shop to the shipping department.

(7) Coordination between the manufacturing and shipping departments' inspection personnel may reduce the time spent in this operation.

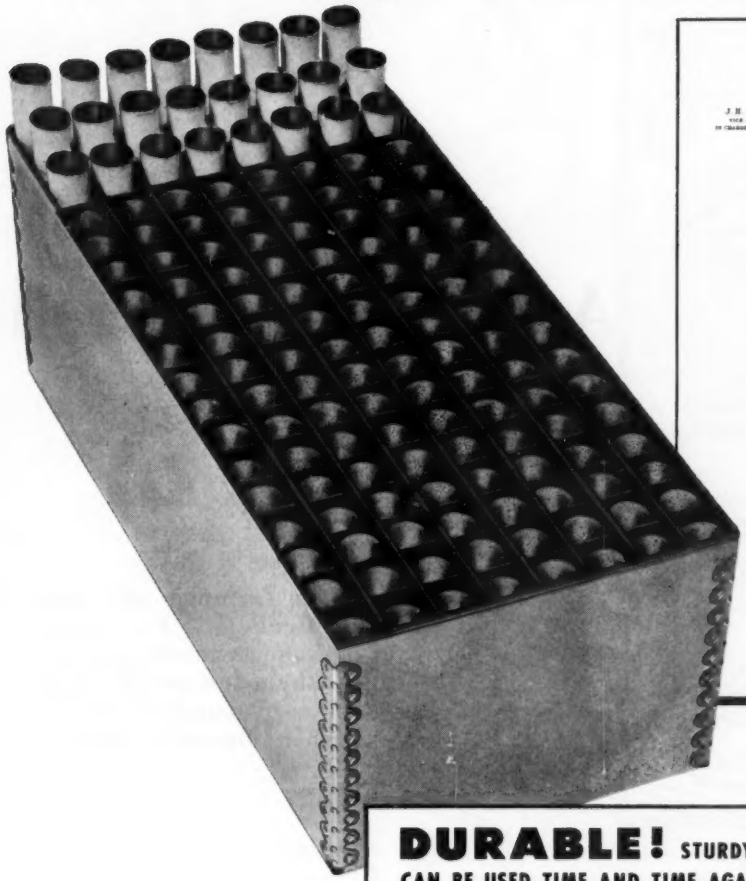
(8) Reduction in duplications of manpower and materials (from the paper work standpoint) made necessary by rejection of items.

Advantages of the mobile unit would not be limited to these described above, nor would each of the advantages apply to all users. The complexity of the handling problem varies with the operation to be performed. Overall operations of various potential users may be affected similarly, however, regardless of the product differences.

In support of Dr. Baker's arguments for simplification in material handling, there seems to be a trend toward simplification of packaging. This may be attributed to two major factors which are especially true in the case of military orders. The first is the growing use of air freight, and the second is the practice of reducing of inventory and shelf life requirements.

The mobile packaging concept appears to have a definite niche to fill in our modern manufacturing economy. It fits nicely into the picture, especially when thought of as a service to subordinate departments in a manufacturing organization, to help in solving material handling or shipping problems. Many smaller concerns cannot afford to hire trained packaging personnel or stock the necessary materials. A mobile unit for rent, lease or hire could prove ideal for small companies in this category. It will surely result in a noticeable reduction in damages to in-process parts and a considerable savings in packaging costs.

Colgate-Palmolive Tells Why *ONLY* Metal Edge Boxes Do The Job!



Colgate-Palmolive Company
300 Park Avenue
New York 22, N.Y.

J. H. BLARNEY
VICE PRESIDENT
IN CHARGE OF PURCHASES

May 24, 1957

Mr. Edgar F. Collins
National Metal Edge Box Co.
Box Number 70
Barrington, N. J.

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When it becomes apparent to us at Colgate that a particular supplier has made a contribution to the success of our company, we like to recognize this contribution. Metal Edge has done a job for us with our electronic eye tube filling machine that is 100% satisfactory. This machine is a highly precisioned instrument which requires that tubes be held in exactly the right position for the electronically operated fingers to extract and fill them. Thus, the boxes that hold the empty tubes must be rigid and hold to extremely close tolerances. We have found that the Metal Edge boxes were the only boxes to meet so many high standards.

1. Durability - A Metal Edge box is so strong - and well constructed that it may be re-used scores of times in transporting tubes from the supplier to Colgate. They take a real beating!

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Cordially,

JHB:bb

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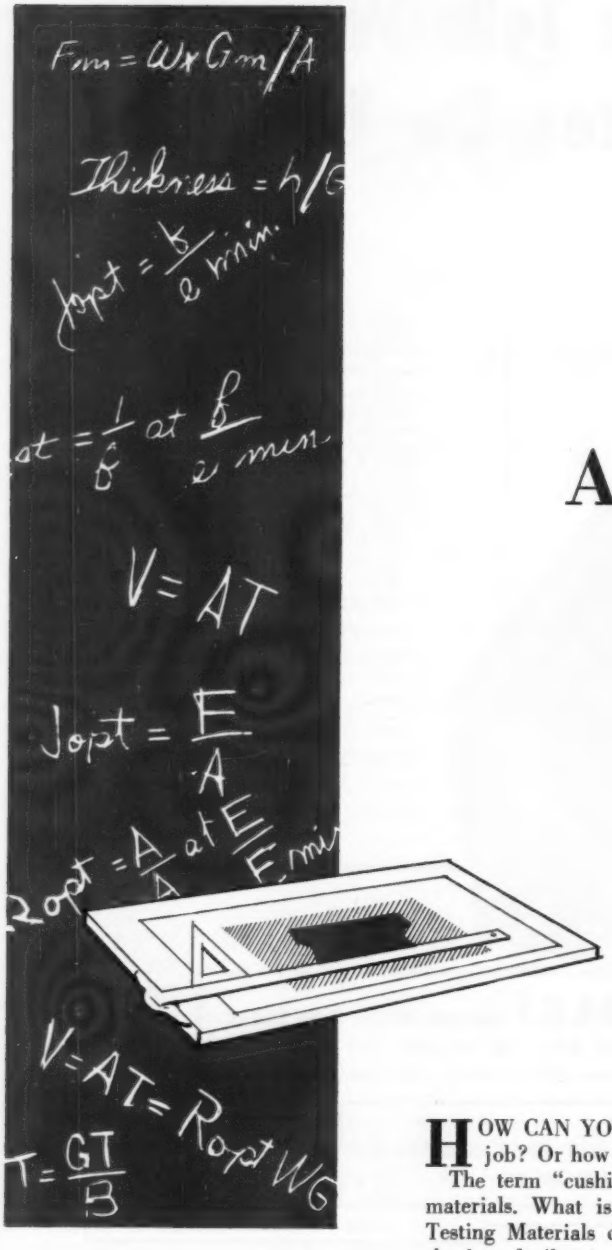


A Basic Approach

Complex formulas and slide rule calculations for design of package cushioning are replaced by a few simple steps in the easy-to-understand approach discussed here.

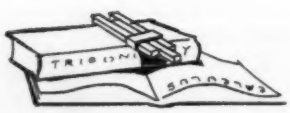
PART I

HOW CAN YOU TELL the best cushioning material for a particular job? Or how much of it to use?

The term "cushioning" has wrongly been applied to many types of materials. What is a cushioning material? The American Society for Testing Materials defines cushioning as a material which is used as a shock and vibration isolator. It must exhibit a relatively high degree of compressability and recovery. In other words, cushioning materials are resilient materials. They absorb shock and vibration by "giving" with the product, and return to original shape when the shock is removed.

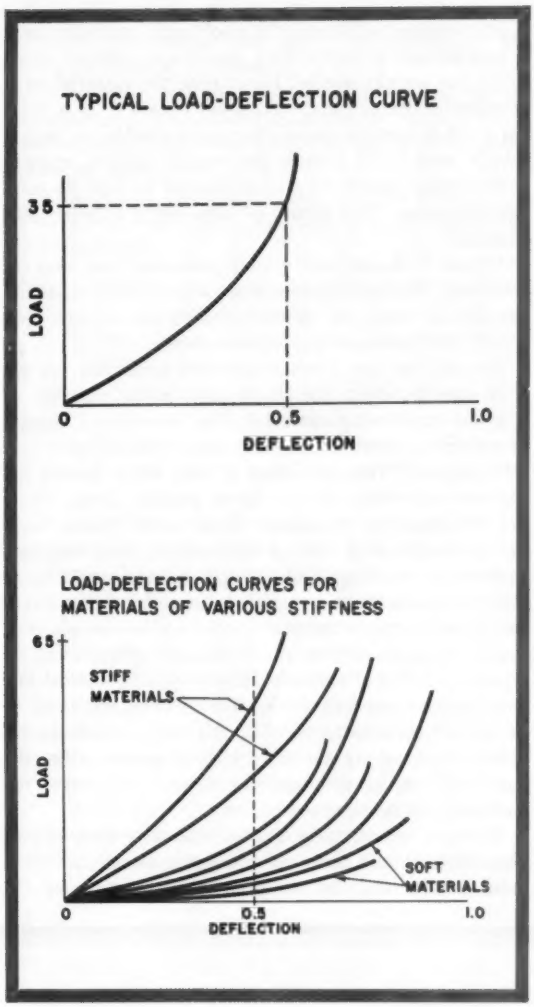
Theoretically, there is an ideal cushion stiffness for every problem. The objective should always be to select this optimum material, and use the minimum thickness of it. To figure what material to use, first compute how far the item must slow up in order not to break. Then select the material that will absorb enough energy to allow the item to slow up that much—no more, no less. This will be the optimum material to give a cushion of minimum thickness.

If you know the weight of the item to be packed, the area which bears on the cushion, the fragility of the item and the height of drop, you can compute the ideal stiffness of material to provide a cushion of minimum thickness. To be sure, you may be able to do the job with a material that



to Cushioning

by Thomas P. Wharton
Vice President
Container Laboratories, Inc.



In typical curve (top), cushioning material is squeezed to half its original thickness, or deflection, by load of 35 psi. Materials vary greatly in stiffness (bottom). When curve becomes vertical, maximum compression has been achieved.

is too stiff or too soft. But in both cases you will waste material. If the material is too stiff, you must use a thicker cushion to allow the item to displace enough to keep it from breaking. If it is too soft, again it will require a greater thickness to absorb the shock before the item hits bottom.

So far, we have talked about stiffness as the key to selection of proper cushioning for a particular job. There are many other things which must be looked for in the selection and evaluation of various cushioning materials:

(1) The material should be free of dusting so that lint, powder, etc. do not contaminate the product.

(2) It should be free of acids, chemicals or vapors.

(3) It should be stable and not deteriorate under usage.

(4) Sometimes it is necessary to limit moisture absorption so that the material will not hold moisture within the package.

(5) It should not be affected by moisture, and if a bonding agent is used it should not dissolve in water.

(6) If the material is used next to a finished surface, it should not cause abrasion.

(7) It should not be affected by extreme temperatures if they will be encountered.

(8) Sometimes a material must be flame resistant or mold resistant.

To measure stiffness, the packaging engineer uses a load-deflection curve. This is a simple way of measuring the weight needed to squeeze the material to a fraction of its original thickness. Figure 1 is a typical load-deflection curve. In this example, it would take a load of 35 pounds per square inch to squeeze a particular sample of sponge rubber to half its original thickness. That would be considered a rather stiff material.

Figure 2 shows how widely materials can vary in stiffness. The variation here to cause a 50 percent deflection is from one or two pounds per square inch to 35 or 40 pounds per square inch.

As you can see from these load-deflection curves, it is easy to chart the shock absorption capacity of a given cushioning material. The amount of energy absorbed is shown in the area under the curve.

You will notice in Figure 2 that, while curves for various materials are the same general shape, there are two types of variations. First, some curves slope rather sharply and evenly; while others start very low and swoop up sharply at the end. Second, most materials compress up to a certain point and then the curve tends to become a vertical line—in other words they won't compress any more. Different materials can be squeezed different amounts; therefore this vertical line may be at about half (0.50) the original thickness or at about nine-tenths (0.90) the original thickness. Generally speaking, the steeper the slope the stiffer the material, and the lower the curve the more the material can be compressed.

In other words, there are two factors which can be figured from the curve of a given material: its *stiffness factor,* and its compressability known as the *deflection factor.*

It is possible to compute the ideal stiffness of material for a particular problem—as well as the deflection factor and thickness required. Higher mathematics can be used for this. But a simpler way is to use a cushioning chart or nomogram developed by Container Laboratories, Inc. By drawing lines through various columns of known factors, you can arrive at unknown factors with this nomogram.

Container Laboratories has found that by working with what the mathematicians call "dimensionless" numbers, a single load-deflection curve can be plotted to represent the properties of most cushioning materials. This nomogram is based on that curve.

Before you can solve any problem with the nomogram, you must know the stiffness factors and deflection factors of all the materials being considered.

To understand how it is used, let's work through the example shown in the nomogram:

Problem: An item weighs five pounds and bears on 36 square inches of a cushion. It cannot withstand more than 30 G's of shock. How should it be protected for a 36 inch drop? What material should be used, and how thick should it be?

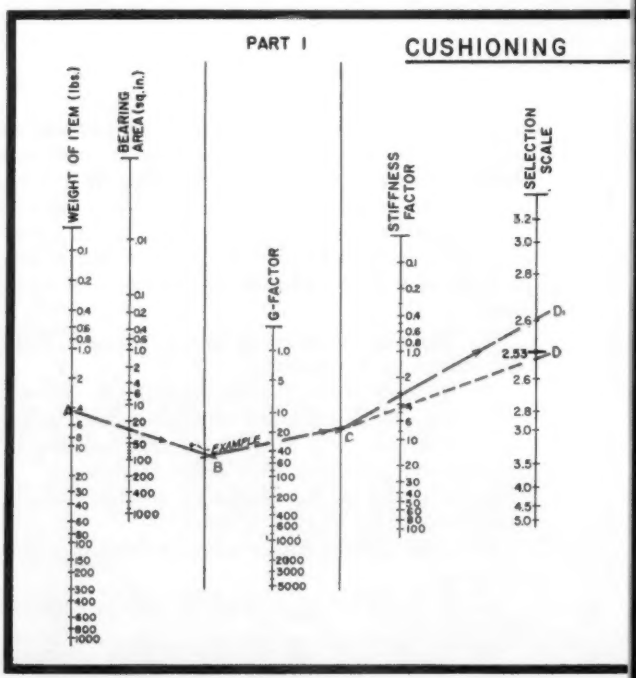
On Part 1 of the nomogram, enter the known factors in their proper columns. Draw a straight line from weight (5 pounds) bearing area (36 sq. in.), and extend this line to the first blank scale (line AB on example). From the point where this line crosses the blank scale, draw another line through the proper G-factor (30 G's) to the next blank scale (line BC). Now draw a line from this point to 2.53 on the selection scale (line CD).

1. TO ESTIMATE MINIMUM THICKNESS of cushioning material if the proper combination of bearing area and stiffness could be attained. This preliminary operation will show whether a pad-type cushion will provide a practical solution. It will also set a minimum thickness at which to aim.

PROCEDURE: Enter Chart 2 with the G-factor and height of drop. Use the largest deflection factor of the available materials. Use the number 2.53 on the selection scale. Read the cushion thickness. (This is a preliminary operation. Neither the material selected nor the thickness read should be considered final. Read the remaining instructions.)

2. TC DETERMINE THE REQUIRED THICKNESS of a given cushioning material, when the bearing area is fixed. It's one of the most common cushioning problems.

PROCEDURE: Enter Chart 2 with the weight of the item, its bearing area, its G-factor and the stiffness factor of the material. Read the number on the selection scale, and transfer this number to ± the selection



(Note 2.53 is a reference number computed by Container Laboratories. Its use will automatically give you the best material for a given problem. In all cases, use the figure 2.53 to compute stiffness factor of optimum material.—Ed.)

At this point you can read the stiffness factor for the optimum cushioning material. That factor is found where line CD crosses the stiffness factor scale. In this case, then, we can see that our cushioning material should have a stiffness factor of 4.0—in other words one which is most effective for loads up to 4 p.s.i.

Now suppose that the closest available material has a stiffness factor of 3.0. And, let us say that this material has a deflection factor of 0.5—in other words it is most efficient when compressed to half its original thickness. It is now necessary to figure how thick this particular material should be for this particular application. For that, we go to Chart 2 of the nomogram.

But before we can go ahead on Chart 2, we must first find the selection number for the material we have chosen. To do this, go back to line CD on Part 1. Now draw a line from C through the stiffness factor for the material actually being used (In this case 3.0). Where this line (line CD_1) crosses the selection scale, that is the selection factor for this particular material. In this case we see that the selection number is 2.65.

Now we are ready to proceed to Part 1. Draw line EF through G-factor (30) and height of drop (36 inches), to the next blank scale. Draw line FG from this point through the deflection factor for the material chosen (0.5). Now draw the final line GH from this point through the selection factor determined by line CD_1 (2.65). Where the final line crosses the thickness scale, we see that thickness needed for the chosen material is 6 inches.

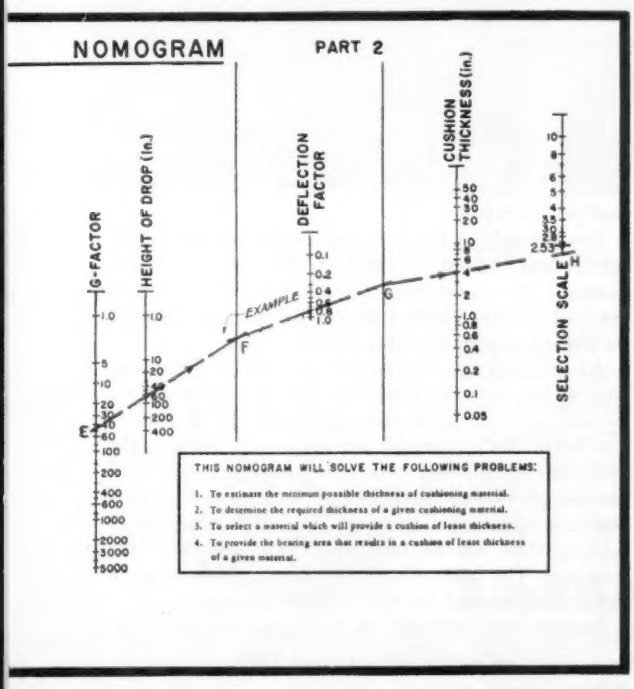
So we conclude that for the problem given in the example, a cushioning material with a stiffness factor of 3 should be used, and it should be 6 inches thick.

By using this same procedure, you can solve many types of cushioning problems with this nomogram. It can be used for:

(1) Estimating the minimum possible thickness of cushioning material.
(2) Selecting a material to provide a cushion of least thickness.
(3) Determining the required thickness of a given cushioning material.
(4) Providing a bearing area that results in a cushion of least thickness of a given material.

The use of the nomogram can provide valuable information, as we have seen. But it should only be considered a starting point in solving your cushioning problems. It can give you basic design information. However, there are many other factors that may make it necessary for you to use an entirely different material from the one you started with.

When the package has been subjected to handling and storage in the field, the properties of the cushioning may change radically. You must take into consideration how the cushioning material will hold up under repeated shocks and climatic conditions, before you can definitely decide on a given material. In Part 2 of this article, Mr. Wharton will explain these additional factors that may affect your selection.—Ed.



scale on Chart 2. Enter Chart 2 with the G-factor, height of drop and the deflection factor of the material. Read the cushion thickness.

3. TO SELECT A MATERIAL which will provide a cushion of minimum thickness when the bearing area is fixed (see Example in text).

PROCEDURE: Enter Chart 1 with the weight of the item, its bearing area, its G-factor, and the number 2.53 on the selection scale. Read the stiffness factor, then select a material whose stiffness factor is close to this value. Then determine the required thickness on Chart 2, by procedure described in Instruction 2.

4. TO DETERMINE THE BEARING AREA that results in a cushion of minimum thickness for a given material.

PROCEDURE: Enter Chart 1 with the weight of the item, its G-factor, the number 2.53 on the selection scale, and the stiffness factor of the material. Read the bearing area. Then determine the required thickness on Chart 2, by procedure described in Instruction 2.

CORRUGATED COVERS for end bells of isolated phase buses are the only packaging required to insure safe delivery to customer. They replace expensive, heavy boxes, or crates and inner wraps.

Customer-Benefit Packaging

by Oliver W. Solum,
Design Engineer
High Voltage Switchgear Dept.
General Electric Co.

SKIDDED UNITS are anchored to flat cars for shipment. Covers will remain throughout installation until it is necessary to remove them for individual connections between bus sections. This method of preparation for shipment has eliminated unpacking problems.

INCREASED overall value to customers has been one of the most important results of an improved method of packing isolated phase bus equipment at General Electric Co.

The isolated bus is a metal-enclosed conductor which carries high currents of electricity from a power house generator to transformers. During a re-design program of the large units a study was made of shipping methods . . . with excellent results.

All previous bus shipments were crated, for transport in box cars, or boxed for flat cars. The crating method gave no protection against entry of dirt or dust while the equipment was in transit, because the only interior packing was a layer of paper around the bus. It was realized that if boxing and crating could be eliminated there would be a reduction of packing time and an increase in convenience to the customer. The latter advantage, of course, from elimination of the need for uncrating and unpacking.

Several new methods of preparing the units for

(Continued on page 166)

Save time . . . with a free hand

With any strapping tool but this one, it takes two hands and sometimes separate tools to tension and seal strapping. But this man is using Signode's famous one-hand, one-piece Model SFC. It's so light and well-balanced that he can easily hold and operate it with one hand — even on the side of a package. His other hand is free to position the strapping and turn the package or move it on to the next station. Strapping goes faster . . . naturally! Lending a hand to speed your strapping is one more way Signode can make your product cost less to handle, store, ship and receive. See the Signode man near you, or write:

SIGNODE STEEL STRAPPING CO.

2618 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide.
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PACKAGING AND SHIPPING IDEA of the month

This Truck Is Its Own Loading Ramp

A RADICALLY NEW TYPE OF TRUCK has been ordered for commercial use by Railway Express Agency in New York. The unit is called the "Lo-Loader". It features an elevator-like body which can be raised, lowered or tipped to adjust to any type of loading and unloading conditions.

The elevating body of the vehicle is built on a series of hydraulic jacks. It works like an elevator, to reach a maximum height of 54 inches. It can be lowered until the body floor rests upon the street, for curb-height loading. This makes it possible to load the truck in a small fraction of the time required to handle cargo on a conventional truck of rigid height. Railway Express estimates that the vehicle can cut loading time as much as 75 percent as compared with conventional vehicles. That would also mean a labor saving of 40,000 pounds of manual effort per truck loading.

NEW VEHICLE is hydraulically raised or lowered. Body can be elevated from ground level to 54 inches, providing walk-on loading and unloading at any level.

The body of the new truck can be lowered to ground level from its normal driving position in 12 seconds. It has a 5-ton capacity. With the entire 16-foot body floor resting on the street, it provides easy and uninterrupted "walk-in" sidewalk level loading. These features are expected to be particularly useful in traffic-congested areas.

A simple hydraulic panel at the rear right actuates the body. The hydraulic mechanism operates in much the same manner as aircraft landing gear.

The vehicle body has sliding doors on both sides, and roll-up doors at the rear. It can be raised, lowered or tilted easily, to conform exactly to any loading dock height from ground level up to 54 inches off the ground. It doesn't matter whether the truck is resting on a level, sloped or uneven ground surface, since the vehicle can easily compensate for any irregularities.

Railway Express will test the potential advantages of the new unit in its New York City operations. The initial use is expected to provide easier and faster loading of live and iced seafood shipments. These are

moved in crates and barrels.

The Agency, in later on-the-job experiments, will explore the full potential of shipping by this new method. Agency executives hope the new vehicle will help cut the rising operating costs experienced by most fleet owners.

Has Front Wheel Drive

In order to get the elevator body to ground level position, the "Lo-Loader" has been built with front wheel drive, making it possible to eliminate the rear axle and conventional drive shaft. Mating channels act as the elevator guide. These channels connect the body and the chassis containing the front drivingle axle, engine and cab.

The tilting feature of the body offers special advantages, in addition to those gained in elevating and lowering. The hydraulic cylinders that actually do the lifting can be operated independently. That makes it possible to tilt forward or backward, or to either side. This feature is handy in loading and unloading by gravity roller conveyor. One end of the body is simply raised or lowered, so that the roller conveyor is tilted to take advantage of the pull of gravity.

Operators can also take advantage of the truck's unique characteristics for tire-changing operations. A rear tire can be changed by placing a block under the rear of the body. Then the body is lowered until it rests on the block, and the wheel rises off the ground.

According to the manufacturer of the vehicle, it is available in many body types, with capacities up to 20,000 pounds payload.

TILTING in any direction is possible, to speed up gravity loading by increasing the angle of incline.

BRAINARD HEAVY DUTY STRAPPING

INTEGRATED PRODUCTION . . . . . Assures Constant Supply

As a division of Sharon Steel, Brainard's integrated production insures a constant supply of Heavy Duty Strapping in all heavy duty sizes and gauges:

1¼" by .035, ¾" by .035, 2" by .050, 1¼" by .050, and ¾" by .028.

and that's not all . . . BRAINARD

NEW PNC HEAVY DUTY TOOL

Pneumatic Heavy Duty Strapping Tool, first of its kind. Rugged, light weight, and portable, this power tool insures uniform tension on each band. Power does the work and eliminates operator fatigue. Specially designed for use on pallets, skids, and sheet steel.

BRAINARD STEEL STRAPPING DIVISION
WARREN OHIO

I would like more information about Brainard's Heavy Duty Strapping and the PNC.

NAME_____
COMPANY_____
ADDRESS_____
TITLE_____

Brainard Steel Strapping SHARONSTEEL

Brainard Steel Division, Sharon Steel Corporation
Griswold Street, Warren, Ohio

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RECORD CONTROL...

(*Continued from page* 90)

tion revolve around a single person, we have taken great pains to set up simple, uniform procedures under which every action in the buying and handling of merchandise becomes a matter of records. In turn, the records have been kept so simple that they can be readily understood and evaluated by even a person who has never seen them before.

The hub of our stock and purchasing controls, and also the source for information in answer to customer inquires, is a battery of visible record cabinets. As this is written, the system has been in use at Oliver Van Horn Co., Inc. for about two years, having replaced an index card system which was too cumbersome and furnished insufficient information.

The mechanics of this type of stock control record are probably well enough known by now so that a very brief explanation of this phase of the work will suffice. The real interest for us has been in establishing management policies and methods to take full advantage of these records.

Each inventory item is controlled through records housed in an individual, rapid-reference file pocket. In the bottom portion of the pocket is a form on which we record day-to-day sales of the product.

To guarantee that these records are current, our paperwork flow is set up so that orders pass through the record section before they are filled in the warehouse. This is also where the matter of guarding against misplacement or inability to find articles enters the picture. The system serves as the master warehouse location control. As each ordered item is charged off the visible records, the clerk enters the location in a column provided on our order form.

Close Accuracy Check

This practice gives us a double-check of accuracy: (1) The need for entering locations serves to

Specify DERBY Tape Dispensers

World's Largest Selection of Gummed and Pressure Sensitive Tape and Label Dispensers and Moisteners

For shipping room or office . . . production line or packaging counter, there is a Derby machine to do the job faster, better, and more economically. The machines, above, represent the nine different *types* of dispensers and moisteners in the Derby line, which together are capable of dispensing a tremendous variety of tapes and labels.

For Information On The Complete Line, Write For Our New Brochure

DERBY SEALERS, INC.
DERBY, CONNECTICUT

66 MODELS Designed For Every Dispensing Application

A. PACKAGE SEALERS — For Standard 500′ Rolls of 35 lb. Gummed-side-out Tape up to 1½″ wide

B. GUMMED SEALING TAPE DISPENSERS — For all standard Kraft and Reinforced Gummed Tapes from 1″ to 4″ wide. Nine models available

C. PRESSURE SENSITIVE TAPE DISPENSERS — For Counter, Office or Factory, dispensing Cellophane, Acetate Fibre, and many other Pressure Sensitive Tapes

D. LABEL AND ENVELOPE MOISTENERS — For Moistening Envelopes, Labels, Stamps, Stickers, etc. Seven models available

E. INDUSTRIAL DISPENSERS FOR PRESSURE SENSITIVE TAPES — Filament, Glass Fibre, Acetate Fibre, Cloth, Paper, Plastic, Cellulose, and Plastic Film Tapes. Nineteen models available

F. POLYETHYLENE BAG SEALERS — For fast, easy sealing of Produce and Poultry Bags with Pressure Sensitive Tapes. Six models available

G. TEAR-OFF TAPE DISPENSERS — For 35 to 60 lb. Gummed Tape, 1½ to 3″ wide

H. CODING ATTACHMENTS FOR GUMMED KRAFT DISPENSERS AND BAG SEALERS

I. ELECTRIC AND MANUAL DISPENSERS — For Pressure Sensitive Labels in Roll Form. Ten models available

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RECORD CONTROL

Continued

assure us that all ordered items will be listed in the visible file records: and (2) this notation on the order form advises the warehouseman that the inventory records show the item on hand, and indicate its location.

In the top portion of the file pocket, we keep a form which accumulates information on purchases and usages of the item. Space is provided for entering the dates, order number and quantities of all purchase orders and information on receipt of the merchandise. The same form also gives us room to enter figures summarizing—month by month for up to six years—our sales of the product.

This second form also provides spaces for noting information on the shipping point of the item, available packaging units, minimum orders and average delivery time.

In setting up the visible file as a usable working tool, we have grouped product control records according to the manufacturers who supply them. At the head of the first tray of records controlling the products of each manufacturer, we file a general information card on the conditions for doing business with this firm. Under a uniform system, this gives us finger-tip access to complete records on the addresses of the factories, their telephone numbers, our contacts there, the manufacturers' policies regarding special allowances for size or amount of order, drop shipment, or any other pertinent data.

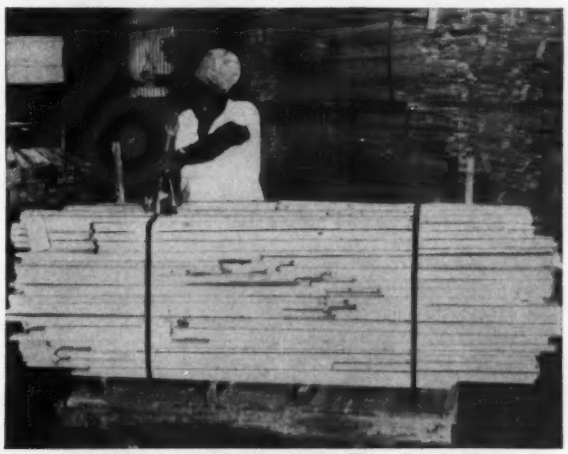
A final control function served by these records is the filing of information on surplus inventories in each of our branches. We get monthly inventory reports from the branches, and when surplus stocks show up they are noted on blank sheets of paper and slipped in the proper file pockets. In this way, surplus stock information is together with other data and will not be overlooked in purchase of the item.

It is in purchasing that we have been able to effect perhaps our

How 3 major companies speed handling and cut costs with USS GERRARD STEEL STRAPPING

GLEN-GERY SHALE BRICK CORP., Reading, Pa., feels that, "USS GERRARD Round Steel Strapping enables us to balance our work load, service customers faster, and reduce breakage. During slow winter months, we package 500-brick units and store them for the busy season. In this way, we're set for rush orders, and one man can load a full trailer truck in *15 minutes*. It used to take three men over 30 minutes. The bricks stay cleaner, there's less breakage, and units arrive in excellent shape. We've found GERRARD Round Strapping to be the least expensive form of strapping."

CLIMAX FIRE BRICK CO., Climax, Pa., states, "USS GERRARD Flat Steel Strapping has saved money in loading, storage, breakage and man-hours not only for us but for our customers as well. We have reduced shipping damage to less than 1%, and cut man-hour time loading freight cars by 75%. And, since we can safely stack GERRARD-palletized tuyeres much higher, we've increased storage space by 33%."



E. A. STEWART LUMBER CO., INC., Texarkana, Texas, has this to say: "Handling time cut 80%, storage space increased 60%, with the aid of USS GERRARD Flat Steel Strapping. Two men with a fork lift can now load a freight car in 1½ hours, a job which previously took five men six hours! Trucks can now be loaded in half the time formerly required. And, due to the firm packaging by GERRARD Steel Strapping, warehouse storage space has been increased by 60% . . . since pallets can be stacked much higher."

Bring your packaging-tying problems to **USS Gerrard.** Regardless of what they are, our engineers will help you to find the safest, surest, most economical solution to them.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CHICAGO, ILLINOIS

USS GERRARD STEEL STRAPPING
Round and Flat
UNITED STATES STEEL

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United States Steel Corporation
2937 West 47th St., Chicago, Illinois

Please send me, free of charge, the new 36-page GERRARD Blue Book of Packaging.

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Title .....
Company .....
Address .....
City ..... State .....

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STRONG

Fir plywood crates, used to ship bulky radar equipment to the DEW Line Project, provide the necessary strength and durability without excess weight. Crates are built of ½-inch Exterior-type fir plywood over 2 x 4 shoring. Designed and built by International Packaging Corp., Tacoma, Wash.

VERSATILE

Tobacco hogsheads of fir plywood have demonstrated these advantages: simplicity of construction, maximum re-use, savings in weight and storage space, reduction of waste in handling and repair. The hogsheads are collapsible, can be dismantled and returned to loading points for reshipment.

LOW COST

Annual savings estimated at $5,000 are reported by the Keeney Truck Lines, Los Angeles, California, through use of "bottomless boxes" of fir plywood. Box is positioned over palletized bricks prior to loading on flatbed trailers, holds them during transport. Saving comes from maintenance reduction, compared to previous aluminum boxes.

DFPA TESTED QUALITY

FIR PLYWOOD

means quality construction

FOR MORE INFORMATION about uses shown above, design and/or specification data, mail coupon ⟶

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RECORD CONTROL

Continued

most marked management improvement. In the day-to-day posting of the records, we get a built-in control against being caught short on stock items.

On the control forms for each item, we list minimum and maximum quantities which represent healthy inventories. When a current withdrawal brings an item below minimum, the clerk makes a note of this and sends it to the writer for daily review. Where the shortage is urgent, an emergency order is prepared immediately. Otherwise, the notation is placed in our regular buying follow-up folder for action on the assignment day for the particular line.

The writer supervises the buying for all branches of our company. We have set up a routine to handle this work under which we do buying to cover a specific portion of our inventory on 15 separate days in each month. This works out conveniently in that we have just 15 visible file cabinets, and handle the records of a separate cabinet on each buying day.

Files Slide Out

We pull the file slides from the cabinets and work with them right at our desks. All special requests and notes on shortages are pulled to cover each specific buying day and the affected lines are covered in order, working from the top of the cabinet to the bottom. Under this arrangement, buying has become just this simple:

We merely leaf through each slide, turning open one pocket at a time. In split seconds, we can compare current stock levels of a product with specified maximums and minimums and, if necessary, review usage of the item.

Where a purchase is to be made, we merely make three short entries in the form at the top of the pocket: the date; the purchase order number, which we assign consecutively out of a control book; and the quantity to be ordered. That's all there is to it. Then, we merely place a small signal in the visible margin of the pocket to flag the affected item for the girl

RECORD CONTROL

Continued

who types purchase orders, and go on to the next pocket.

During this working routine, the writer just notes on a blank sheet of paper the color of signals used on a given date (the colors are rotated to avoid duplication) and the cabinet number and slide numbers on which orders are entered. The typist who writes the purchase orders takes this list and the file slides indicated to her desk. She opens up every pocket in which she sees a signal of the designated color, and has all the data needed to write a purchase order right in each pocket.

Record Stock Locations

The most noteworthy practice connected with our purchasing policies, we feel, is that we provide a space in which the girl enters the warehouse bin location of each item right on the purchase order. This is the built-in control referred to earlier which helps guarantee that we will not lose merchandise right in our own warehouse.

Operating now with one warehouseman less than we needed before we went to the advanced system, we merely ask the men to follow plainly printed instructions in putting merchandise in the bin or removing it. As noted earlier, the bin location is written onto each line of an order before it goes to the warehouse. As merchandise is received, the warehousemen pull the receiving copy of the purchase order, check the stock, note the bin locations and place the items in their proper place.

We require vendors to note the order number on the outside of each package. With things spelled out so plainly, we no longer have to look for experience in our newly-hired warehousemen. The training period for new warehouse employees is down to nil.

It should be emphasized that, with location information plainly printed on all outgoing or incoming orders, we are getting top production in the place where it

CASE HISTORY 56

	REPLACEMENT:	RECHARGE BATTERIES:
REGULAR RUBBER-TIRED WHEELS	EVERY 2 WEEKS	EVERY 2½ HRS.
DISOWHEEL	SIX MONTHS *PLUS†*	EVERY 4 HRS.
DISOWHEEL ADVANTAGE	13 TO 1 MINIMUM	35%

†Operating continuously for 6 months, tire wear only about 0.2 inches on diameter.

Here's more proof you should investigate

DISOWHEEL*

Case History 56 In an Ohio machine shop two 6000 lb. fork lift trucks had been operating over asphalt floors littered with sharp metal bits imbedded in floor surface and with some areas covered with lubricating and cutting oils. At some points structural I-beams protruded half an inch above floor level. Each truck had four 8" x 2½" rubber-tired steering wheels mounted in pairs at rear and two 8" x 4" rubber-tired wheels as fork rollers. Trucks operated a full 8-hour shift daily and were then used intermittently during next two shifts. Before switching to Disowheel six months ago, the rubber-tired wheels were replaced every 2 weeks; batteries were recharged every 2½ hours. Since switching to Disowheels not one replacement has been necessary although trucks have been in same severe usage and power consumption has been cut about 35%!

DISOWHEEL durability is insured by DISOGRIN® . . . the new polyurethane elastomer from which its tire is made. "Strong as steel, resilient as rubber", DISOWHEEL offers superior tensile strength and abrasion resistance. DISOWHEEL equipped trucks cut downtime, cut power consumption, cut replacement costs, raise load capacity, don't chew up floors.

Keep *your* trucks rolling efficiently and at less cost. Specify DISOWHEEL for new equipment, for replacements. For information, write, wire or phone —

*Licensed for manufacture under U. S. Pat. 2,729,818

DISOGRIN INDUSTRIES
FORMERLY GREER INDUSTRIES, INC.
NEW YORK INTERNATIONAL AIRPORT, JAMAICA 30, NEW YORK, N. Y.

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RECORD CONTROL

Continued

counts most. We have been questioned occasionally on whether we slown down outgoing shipments by running them through the filing section first. On the contrary, we believe we actually speed them up. Our contention is that a trained inventory clerk can look up location information a lot faster and more accurately than a warehouseman with little or no clerical experience. In turn, greater production per warehouseman means an overall effect of faster shipments, and of course, better customer service.

Another way in which the visible records have enabled us to improve customer service is in answering telephone inquiries on availability of materials. We do a good portion of our supplies business on the phone. Two men are assigned to this work full-time, and three more are always available to back them up when necessary. Outside phone calls requiring information on our stocks average in the neighborhood of 200 a day. We used to have to run back and look at the bins to answer these questions. The visible records enable us to handle these calls with a promptness which increases customer confidence.

All told, then, the practice of holding tight to the important purse strings of our inventory has given us a better picture of knowing what we have and where it is, enabling us to service customers more efficiently.

Photos courtesy Remington Rand Div. of Sperry Rand Corporation.

"Sports Car Influence . . ."

Lone Star boat travels shipshape in corrugated cartons fastened with Bostitch staples

Huge stapled carton cuts boat packing time 50%

Even in Texas, where you expect things on a grand scale, a corrugated carton big enough to hold a boat is *big*.

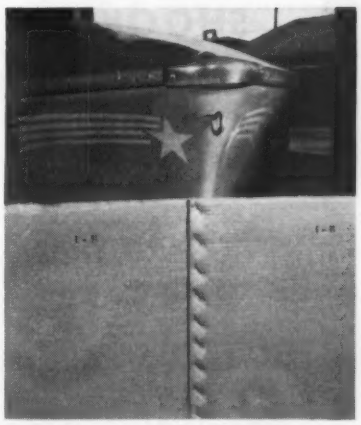
A Texas boat builder wanted to replace heavy wood crates for packaging 14-foot boats. He preferred the smooth surface of paperboard, so the boats' finish wouldn't be marred. But he had to have strength enough to support the boat's ¼-ton weight. Rugged Bostitch staples solved the problem.

The carton — biggest the box manufacturer makes — arrives flat with its center seam already securely stitched with a Bostitch stitcher. Then using Bostitch staples, boat packers form the corners and join the telescoped sections. Finally, corrugated cushions are installed and bottom and top sections stapled together. This is all done in *half* the time needed to nail a wooden crate.

The boat company likes the Texas-size assembly and freight savings of stapled cartons. Dealers like the way stapled cartons protect the boats. Of 3000 shipments, 2998 arrived in perfect condition. The other two were only slightly marred.

Your fastening problem needn't be *this* big for big savings. There are 800 Bostitch models to save time and money in home, factory and office.

A call from you will bring one of 375 Bostitch Economy Men located in 123 cities in the U. S. and Canada, who will be glad to show you how.



Center joint of the huge container has been pre-stitched at the container factory with a fast, automatic Bostitch stitcher

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

Look up Bostitch in your phone directory, or write:
Bostitch, 702 Mechanic Street, Westerly, R. I.

☐ Please send me information on ways stapling helps shippers.
☐ Please send free bulletins that show how stapling can cut my costs in other ways.

I want to fasten: ☐ corrugated board ☐ cartons ☐ fabric ☐ leather ☐ plastic bags ☐ wood ☐ roofing ☐ rubber ☐ light metals

*Name*_____
*Company*_____
*Address*_____
*City*_____ *Zone*____ *State*_____

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ADVANCE PLANNING . . .

(*Continued from page* 85)

train, leaving the "take-it or leave-it" pallet behind. The loads are then carried directly into the rail car and deposited.

Two of the attachments on this fork truck enable the operator to spot his load accurately and leave it, even though no pallets are used. The first of these is a side-shifter which permits the operator to move his loads up to 4 inches either right or left of center, thus making it possible to position cases directly against the wall of the car for greater stability in transit.

The pusher attachment enables the operator to push the load off the chisel forks and keep it positioned exactly where it was originally spotted. This is done by a synchronized action in which the pusher moves forward at the same speed with which the forks are withdrawn from under the load.

Refrigerated cars are loaded by a fork truck and a powerized walkie which team up to load this type of car. The small doorways of these cars will not permit entry of the standard fork truck. The fork truck deposits the palletized load just inside the reefer door. The load is then picked up by walkie, moved into the car, removed from the pallet and restacked in the car by hand. The empty pallets are returned to the warehouse, as pallets are not used when shipping by freight car.

Pallets used for bottled and canned beer also are used to store and transport keg beer. Each pallet holds four kegs, and as many as 12 kegs can be transported at one time by the fork truck, which moves either to the truck loading dock, to storage or to the rail siding.

Palletizing and fork truck handling also includes the transportation and storage of miscellaneous supplies, such as bottle crowns, labels, carton material and similar items. Baled scrap paper is moved from the baling machine by a fork truck equipped with a hydraulic load grab designed for handling this material and other odd loads.

The same efficiency found throughout the entire brewery operation extends to the system used for changing and charging truck batteries. The changing of batteries on each truck is on a staggered schedule that begins at 7:05 a.m. and continues to 10:45 a.m. A maximum of 10 minutes to change batteries is allowed each truck. This gives plenty of leeway for the truck to come from its operating area.

Each truck has two batteries. While one is in use, the other is being charged. All batteries are numbered and specified for use only with a particular truck.

Thus, effective and efficient utilization of material handling equipment keeps Anheuser-Busch's handling costs at an absolute minimum. It has all but eliminated breakage while increasing the safety for employees. This installation provides positive proof that careful advance planning of complete handling systems as a prelude to plant construction is a worthwhile investment.

Louden Monorail
cuts the cost of
Interplant Transport

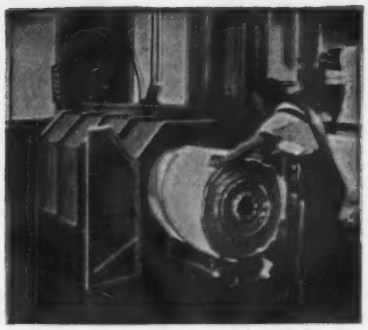
As companies grow and expand production facilities, the problem of interplant transport of materials, parts or semi-finished products is often encountered. Time and again Louden Monorail proves to be the perfect answer. With Louden's Selectomatic Control, such an interplant transport system can be virtually *automatic.*

The Louden Selectomatic Interplant Transport System at the Marion, North Carolina, plants of the Clinchfield Manufacturing Company is a good example. Here the problem developed of transporting tons of cloth daily between three separate buildings. 650 feet of Louden Monorail with a weather-proof car in almost continuous operation provides the perfect answer. The car can be raised and lowered as required for charging and discharging loads; the destination desired is preset by the control; transport is speedy, trouble-free, automatic. It is estimated three men with trucks would have difficulty doing the same job.

Louden Selectomatic Interplant Transport Systems can do many things not required in the Clinchfield installation described. It can automatically transport materials unattended from point to point anywhere in or about your plant, and it can select the shortest and most direct route to its destination. It can travel from floor to floor and building to building, open doors to let itself through and close doors behind it . . . building doors, floor doors, oven doors. It places loads in ovens or in banks of infra-red dryer lamps, turning the heat on and off as needed. It stops promptly when there is a load ahead or when it does not have the right of way, and resumes travel when the way is clear. It stops accurately at its destination and even loads and unloads its own carriers with certain classes of materials. It returns empty carriers to point of origin or places itself in storage awaiting its next call.

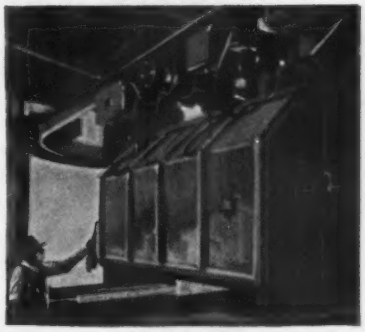
Louden Automatic Materials Handling is the guaranteed product of the pioneers and oldest company in the field of specialized monorail handling. Both the Louden field representatives and the factory engineers are highly trained specialists in the field of overhead materials handling. When you have a materials handling problem or any plant problem involving lifting and transporting loads, call on Louden for suggestions. This will cost you nothing but may prove to be the most profitable move you have ever made.

THE LOUDEN MACHINERY COMPANY
7308 Broadway, Fairfield, Iowa
A Subsidiary of Mechanical Handling Systems Inc.

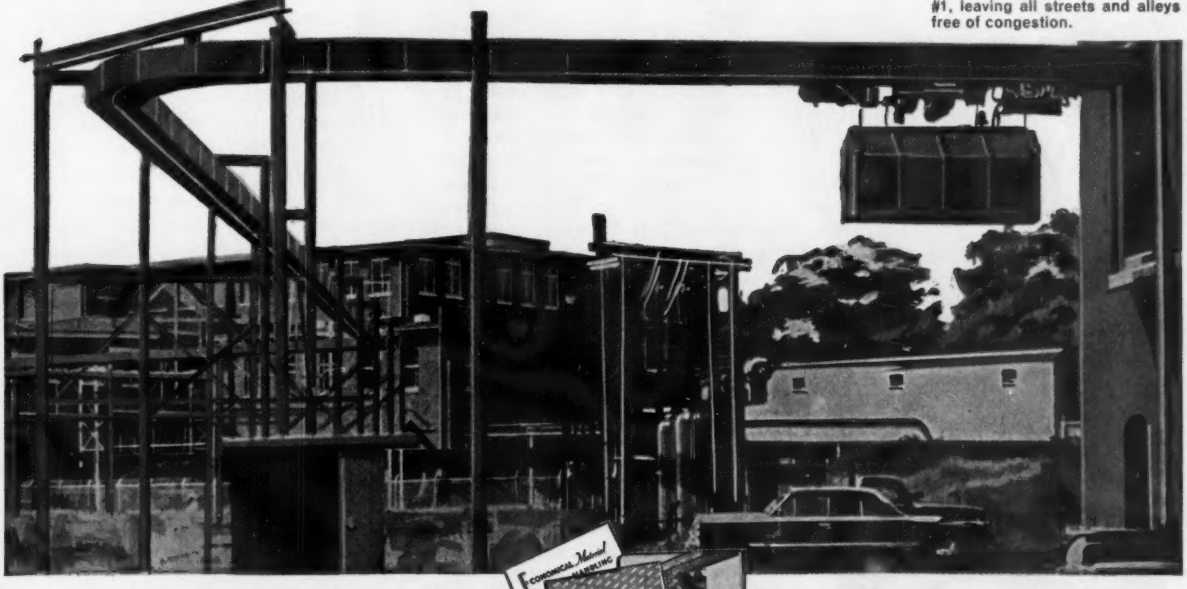


Operator loading carrier with two 650 pound beams of domestic print cloth prior to transport from loom room to cloth room.

Below:
Operator raising carrier into position, selecting destination by push button. Carrier automatically stops at desired destination.



Below:
Carrier completing trip automatically and unattended on 650 feet of Monorail from Plant #2 to Plant #1, leaving all streets and alleys free of congestion.



Get the latest information on the best in modern materials handling systems. Write today for your copy of "Economical Material Handling", a 52 page book full of how-to-do-it ideas. If you are interested in automation, ask for the new book on Louden Automatic Dispatch, "Automatic Materials Handling". With either you will receive the latest information on Louden Shok-Pruf Electrification, new safety in power for cranes and monorail systems.

Louden
MONORAIL & CRANES
SINCE 1867 . . . THE FIRST NAME IN MATERIALS HANDLING

Circle No. 99 on Reader Service Card for more information

SINGLE-STORY vs. MULTI-STORY . . .

(*Continued from page* 89)

fraction of these factors are considered. An example of this type of limited approach to the problem is given in Table 1.

The attention in Table 1 is focused primarily on the comparative loss of area to columns, elevators, stairs, loading docks and outside walls. There also is the conventional translation of these figures into such derivative factors as the price of land, percent of useable area and of construction per square foot of such derivative area. In this approach, no attention is given to the operating cost that will be incurred year after year in this building long after the initial differential in construction cost per square foot of floor space has lost its initial impact.

Moreover, this differential between multi-story and single-story buildings is frequently smaller than it is in a number of other one-time items of expenditure, such as cost comparisons of land, power plant, roof, office quarters, employee parking lots and others.

The fact remains, therefore, that in making a sound, well-balanced appraisal of the comparative advantages and disadvantages of these two types of buildings, the more factors that are properly considered, the more judicious will be the decision. The approach to the selection of a plant type should, therefore, be from a three-dimensional viewpoint, with due regard to the features of multi-story buildings, rather than from a two-dimensional floor plan of a one-story structure.

Say, this is fun. Which department am I in now, fellas?

FLOW
Circle 42 ➔

WHY THE *POWRWORKER*® AT LE TOURNEAU-WESTINGHOUSE?

Move a 6000 lb. gear into a tight working area and you've got performance. Move anything from small parts to huge assemblies and you've got versatility—*pay-for-itself* versatility. Routine jobs for the Clark Powrworker at Le Tourneau-Westinghouse. How about your operations—need a compact *giant*? Write for your personal copy of the Powrworker booklet. It gives construction details, features, reasons why a Powrworker will profit your operations.

Your local Clark dealer is listed in the Yellow Pages.

CLARK EQUIPMENT

POWRWORKER SECTION, Industrial Truck Division
CLARK EQUIPMENT COMPANY
BATTLE CREEK 13, MICHIGAN

For HARD-TO-HANDLE *Handling Jobs* YOU *Can't Beat* TUBAR CRANES

11 models . . . ½ to 3-ton capacities

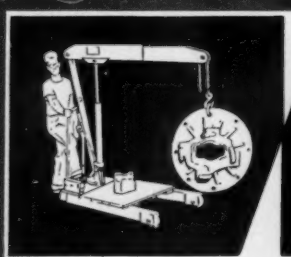
Whether you're handling bulky cargo, installing machinery, or assembling heavy parts, Tubarcranes do the job better, faster, and safer. All Tubar Floor Cranes have extra-rugged tilt-back masts that give you extra working space for handling bulky loads. Their easy-to-adjust three-position extension booms give you extra boom length when you need it. And their four-point suspensions assure extra stability and greater maneuverability.

All Tubarcranes are powered by variable-stroke, double-acting hydraulic pumps that provide plenty of reserve lifting power, yet permit you to adjust pumping effort to load by simply rotating the pump handle. And you never worry about overloading. An internally-mounted automatic by-pass in every control valve prevents all overloading dangers.

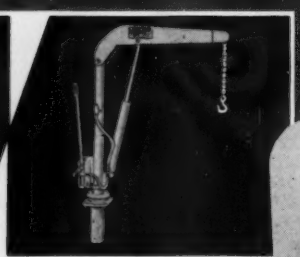
For further details and complete specifications, request Bulletin U-155-53.

GUARANTEED

All Tubarcranes are backed by Uhrden's traditional 90-day guarantee against defective materials or workmanship.



Tubar Floor Cranes are available in eight different models . . . capacities from ½ to 3 tons . . . each complete with a built-in extension boom that adjusts to three positions.



Tubar Truck Cranes are available in three different models . . . ½, 1, and 2-ton capacities . . . for truck or dock mounting.

Tubar CRANE DIVISION

uhrden, inc.

DENNISON, OHIO

Tubar ASSURES QUALITY

U-157-26

Circle No. 148 on Reader Service Card for more information

WHAT'S NEW IN USEFUL LITERATURE

A bibliography of New and Current Manufacturers' Publications available upon request. Indicate choice (s) on self-mailing Reader Service Card on pages 33 and 34.

Concise Information On Electric Chain Hoist:

Details on weights, capacities, lifting speeds, dimensions, construction features and general information are included in Bulletin DH-73 covering the new Electric Chain Hoist of Wright Hoist Div., American Chain & Cable Co. A 4-page, illustrated folder, it describes two types of reeving—the single chain 300-2000 lb. capacity model, and the double chain 3000-4000 lb. capacity unit.

Circle 245 on Reader Service Card

6000 Pound Truck For Outside Handling:

Features complete specifications and operating characteristics of the YR-6024, a 6000 lb. capacity fork truck for outside handling, are given in a 4-page brochure (Bulletin YR-60-A) issued by the Industrial Truck Div., Clark Equipment Co. Charts indicate tractive effort and gradeability in both high and low range. Features include planetary drive axles, twin hoist unit, upright assembly, and gas-powered, 68 hp engine.

Circle 246 on Reader Service Card

Source Booklet On Controlled Conveying:

Automatic material handling for vertical and horizontal operations, as well as combinations of both, is the subject of a reference bulletin (E-557) just released by West Bend Equipment Corp. Comprehensive descriptions and detailed illustrations make it a source booklet for projects in push-button control of production and shipping flow, automatic storage and pick-up, quality control, package selection and rejection and similar mechanized installations.

Circle 247 on Reader Service Card

Plywood Design Data:

"Design with Fir Plywood" is a booklet released by the Douglas Fir Plywood Association. It is an informational aid to industrial designers, material handling, packaging and plant engineers, architects and other specifiers of building and industrial materials. Included are charts on plywood's properties and design data, tables on nail bearing properties, working stresses, bending radii, and acoustical and thermal insulation, among others.

Circle 248 on Reader Service Card

Safety-Designed Dump Bodies:

Specification sheets from Daybrook Hydraulic Division, L. A. Young Spring & Wire Corporation, describe three "Speedlift" dump bodies for handling stone, sand, asphalt mix and similar materials. Known as Series 803, 930 and 1030, each offers special safety design features, one of which is "dirt-free" sloping running boards, tailgate horizontal bracing and bottom structural channel, which prevents accumulation of material during loading.

Circle 249 on Reader Service Card

Low-Cost Handling:

Application ideas and features of Rapistan Flow Track are described in a bulletin published by The Rapids-Standard Company, Inc. The Rapistan Flow Track, which is gravity conveyor in its basic form, is said to supply answers to many marginal problems at lowest cost.

Circle 250 on Reader Service Card

Need a Portable Warehouse?

United States Rubber Company has issued a 4-page bulletin which describes the Fiberthin "Airhouse", a unique principle of building construction. Extremely low pressure air supports the entire structure. No rigid metal or wood framework is needed.

Circle 251 on Reader Service Card

Where Automation Is Important:

An automatic round strapping machine that is designed for operations where automation is important to packaging problems, is described in a booklet now available from Gerrard Steel Strapping Division of United States Steel Corp. The USS Gerrard model 12 offers tying speeds up to 24 ties per minute. It is available in two sizes, and either will handle packages as small as 8 inches wide by 2 inches high. The larger unit will handle packages as large as 26 by 20 inches.

Circle 252 on Reader Service Card

Saves Labor and Material:

Both labor and materials can be saved in milling operations with a four-unit automatic flour packer now offered by Richardson Scale Co. A 4-page bulletin offered by Richardson describes the system in full. It consists of four units: a triple screw type feeder, an automatic flour scale, an auger packer and a bag sewing conveyor. Included in the literature is a table showing operating speeds for both one-man and two-man operations, involving textile and paper bags of varying weights and sizes. Measurements and shipping weights are provided.

Circle 253 on Reader Service Card

Lists Statistics on Batteries:

A complete reference catalog on motive-power batteries, discusses important features of batteries used in electric industrial trucks and mine vehicles. Published by Exide Industrial Division of the Electric Storage Battery Co., the catalog has sections on the Silvium alloy used in positive grids, and statistics on the long working life of batteries. It contains characteristic curves showing battery performance at various discharge rates and a list of user benefits. Advantages of Silvium, an alloy of silver, lead and other metals, which now forms the positive grid spines of all Exide-Ironclads, are described in a full-page section on the positive plate.

Circle 254 on Reader Service Card

Describes LP-Gas Equipment In Turnpike Tunnel:

An account of the first use of LP-gas-powered equipment inside a Pennsylvania tunnel is offered by Oxy-Catalyst, Inc. The literature describes in text, photograph and chart the operation of two concrete-mixer trucks and the tests made by state officials in granting authority to operate the trucks. The article tabulates results of an even

severer test of exhaust fumes from an LP-gas powered mixer in the garage of The Sheesley Company of Johnston, Pa. Orsat gas analysis equipment and an MSA carbon monoxide indicator were used.

Circle 255 on Reader Service Card

How About Industrial TV?

An informative 12-page brochure from General Electric Company describes the various components in closed circuit television systems, where they can be applied, how they operate, accessories available and typical equipment arrangements.

Circle 256 on Reader Service Card

How to Package Heavy Goods:

How to cut costs, simplify packing and improve efficiency in the packaging of heavy products are subjects discussed in a new edition of "How to Ship Heavy Products in Corrugated Boxes" just published by Hinde & Dauch. The 28-page booklet offers a dozen illustrated case studies on the packaging of such heavy items as pumps, machine parts, motors, plastics and nails. It also discusses the relative advantages of several basic box styles and their adaptability to various types of goods.

Circle 257 on Reader Service Card

Explains Package Conveyor Belt:

A two-page illustrated catalog section that explains how a type of package conveyor belt solves many incline and decline conveying problems has been published by B. F. Goodrich Industrial Products Company. It explains how the "Griptite" carries both light and heavy packages up or down and outlines its construction features. One feature is a high rib every 18 inches, which serves as a cleat to stop lightweight packages from slipping down the belt.

Circle 258 on Reader Service Card

Wire Rope Recomendations:

An information-packed bulletin, Wire Rope Recommendations for General Contractors, has been prepared by the Hazard Wire Rope Division, American Chain & Cable Company, Inc. It describes the complete line of preformed wire rope, wire rope accessories and boom cable assemblies. Also, included is data on construction features, applications, and diameters.

Circle 259 on Reader Service Card

Rubber Truck Bumpers That Reduce Damage:

Bumpers that are specially engineered to prevent damage to truck bodies, reduce dock damage, and protect fragile freight by absorbing impact shock caused by trucks backing into shipping and receiving docks or other obstacles, are described in a catalog sheet released by Bumpers, Incorporated. The literature highlights the three standard sizes available with detailed specifications, photographs and engineering sketches.

Circle 260 on Reader Service Card

Covers Complete Flexible Metal Hose Line:

A condensed catalog, available from Universal Metal Hose Co., covers the complete, wide range of flexible metal hose manufactured by this company. Recommended pressures, temperatures and specific uses for which each type is suited is included. Types of hose are described and illustrated, including the various styles and sizes of both the seamless, corrugated type and the interlocked type, with or without packing, as well as the styles of couplings used for each.

Circle 261 on Reader Service Card

Welded Chain Comparison Chart:

Link measurements, load limits, and pounds per 100 feet of the major welded chain types, including Proof, BBB, High Test, Republic Alloy, and Crane (Dredge) Chain, are included in a welded chain comparison chart published by the Bolt and Chain Division of Republic Steel Corporation.

Circle 262 on Reader Service Card

Continuous Weighing and Controlling:

Any belt-conveyed, dry material can be accurately, automatically and continuously totalized and fed by the modified Conveyofo Meter, according to a 4-page bulletin issued by Builders-Providence, Inc. The bulletin describes design features, principles of operation, dimensional data, and shows processes and typical applications.

Circle 263 on Reader Service Card

Data and Dimensions on Feeders:

Reciprocating-Plate Feeders are the subject of a 6-page technical bulletin. The units are designed for feeding controlled quantities of all materials from sand to shovel-loaded rock and ore. Featured in the bulletin are data on performance and dimensions for the heavy-duty and light-duty feeders.

Circle 264 on Reader Service Card

Illustrates V-Belt Features:

A bulletin on variable speed belts is being offered by Worthington Corporation. The 8-page bulletin has four pages of tables giving the Worthington-Goodyear belt applicable to various manufacturers' belt part numbers to facilitate reordering. A complete listing of V-belt sizes and an interchange list showing number of Worthington-Goodyear belt that corresponds with other manufacturers' belt is included.

Circle 265 on Reader Service Card

Package Design Formula:

Container Laboratories, Inc. has developed a formula which it claims leads to better packaging at lower cost. It is consulting services plus research and development plus design and engineering plus testing equals better packaging at less cost. It is discussed in detail in a recently published booklet.

Circle 266 on Reader Service Card

Rust Inhibitor Needs No Wrapping:

A 1-page bulletin issued by Carl Lampert Co. describes a rust inhibitor just introduced by the company. The inhibitor consists merely of a small disc, about the size of a coin. It is dropped into a polyethylene bag or similar sealed container, and is said to provide indefinite protection. No other wrapping is required.

Circle 267 on Reader Service Card

Handling Bulk Materials?

Bulletin No. 957 from Canton Stoker Corporation describes the Flo-tube screw conveyors, said to be the most versatile means of handling bulk materials from fine-mesh size up to 2 inches in diameter. They are described as being equally efficient for moving materials horizontally, vertically, at any angle of incline, or in any combination of directions.

Circle 268 on Reader Service Card

Engineering Specs on Fork-Lift Trucks:

Engineering specifications, dimensions and mechanical features of the 5000 pound capacity gas powered model in the Clarklift line of fork trucks are contained in a brochure available from the Industrial Truck Division, Clark Equipment Company. Engineering specifications include pertinent data on the engine, power train, automatic Hydra-tork Drive, hydraulic system, upright assembly and other components. Charts and drawings indicate operating dimensions such as lifting heights, drawbar pull and turning radius. Photographs and sketches describe such features as finger-tip control levers, quick take-off counterweight, swing-up hood and self-adjusting brake.

Circle 269 on Reader Service Card

Lubrication Guide For Trolley & Chain Conveyors:

Helpful information on the proper lubrication of trolley and chain conveyors is available in an 8-page booklet from Conveyor Systems, Inc. According to a company spokesman, by following the recommendations set forth therein, increased efficiency and service life is obtainable and, in many instances, will help obviate the necessity of frequent service calls on such equipment.

Circle 270 on Reader Service Card

Handling Attachments For Trucks and Tractors:

A line of hydraulically operated bulk handling equipment for installation on trucks and tractors is covered in an illustrated specification folder available from Avery Tractor Inc. Called the Samson line, equipment includes a shovel-loader, crane, and back hoe.

Circle 271 on Reader Service Card

Extension Conveyors Reach Out and Up:

Push-button controlled, portable, telescoping extension conveyors are detailed in illustrated specification sheets by The Spivey Co. This belt equipment is intended for such uses as truck and car loading, packaging lines, connections between production processes, and quick service between floors.

Circle 272 on Reader Service Card

Wide Working Range For Yard "Handyman":

Details and specifications on the 10 ton Model 155 WC truck crane are provided in a bulletin from Harnischfeger Corp. This self-propelled, 10-ton equipment is designed for high versatility and maneuverability in a wide variety of handling jobs.

Circle 273 on Reader Service Card

Mechanical Help For Lifting and Stacking:

A 24-page catalog of illustrations and specifications covers the "in-between-handling" applications of hydraulic lifting and stacking trucks produced by Big Joe Manufacturing Co. A check list has been provided to help in the determination of a plant's needs for medium-load, short distance handling.

Circle 274 on Reader Service Card

Gives Platform Dump Body Specifications:

Platform dump bodies, available in lengths ranging from 8 feet to 16 feet and a standard width of 95½ inches, are covered in a bulletin released by Daybrook Hydraulic Division, L. A. Young Spring & Wire Corp. All bodies have a reinforced, heavy-duty understructure that provides exceptional rigidity and strength. Both smooth and non-skid type platforms are available. Stake pockets are provided as standard design. Detailed dimensions and specifications—as well as hoist recommendations—are given.

Circle 275 on Reader Service Card

Protection For Metals Indoors Or Outdoors:

A newly developed protective coating is described in a technical report from North American Aviation. Called Sabrex, it is a liquid, corrosion-inhibiting wax compound for low-cost, easily removed protection for metals and metal parts stored both indoors and outside. It is applied by spraying, dipping, wiping or brushing. The report includes a table comparing the material with other protective coatings.

Circle 276 on Reader Service Card

Automatic Small Parts Feeding:

Equipment that feeds, sorts, rejects, orients and regulates the flow of small parts is the subject of Catalog 356 issued by Perry Equipment and Engineering Co. The vibratory equipment and its accessories are illustrated, described, and detailed in concise form.

Circle 277 on Reader Service Card

Hand Trucks For Many Uses:

Design and development of numerous styles of trucks—such as stock-pickers, ladder trucks, shelf trucks (with or without ladder), maintenance equipment, and rolling A-frames—are discussed in two bulletins from Rol-Away Truck Mfg. Co. One is called, "The Rol-Away Story; the other is an illustrated, 4-page catalog.

Circle 278 on Reader Service Card

For Better Handling of Dusty Material:

Bulletin 182 announced by Sprout-Waldron & Co., Inc., details its Pellet Ace for the processing industry. This unit forms powdered and dusty material into compressed pellets for better handling.

Circle 279 on Reader Service Card

How To Figure Your Belting Requirements:

Tables and formulas helpful to plant and engineering personnel in selecting and handling belting for specific applications are included in an 8-page catalog by Voss Belting & Specialty Co. Belting for food and industrial plant use is described and illustrated. The booklet covers such varieties as friction surface, rufftop, cleated, vulcanized or lapless endless, made of such materials as Neoprene, rubber, woven duck and other fabrics, and special coatings.

Circle 280 on Reader Service Card

Ball Transfers For Multi-Direction Moving:

Detailed data on ball transfers is given in a booklet issued by Mathews Conveyor Co. It includes engineering drawings of the various types, specifications, and suggested uses—such as in the manipulation of plates around sheers and punches, movement of materials horizontally in any direction, and rolling items on or off scale platforms.

Circle 281 on Reader Service Card

"Send Your 'Hot Rodders' To School":

Training for industrial truck drivers is the featured subject in a publication just released by Elwell-Parker Electric Co. Titled, "Send Your 'Hot Rodders' To School For Safe Industrial Truck Operations," the illustrated article provides a list of important pointers for

safety. This is the second edition of the publication, which is called "Elpar Lift For Industry". It also includes a round-up of practical solutions to difficult handling problems, a report on the company's engineering department, and news of new truck models and literature.

Circle 282 on Reader Service Card

Hydraulic Help For High-Up Handling:

Details on a variety of lifts for mounting on mobile equipment are provided in a bulletin from Industrial Hydraulic Lifts, Inc. For 12 volt battery operation, this hydraulic equipment with working platform is offered in capacities from 330 to 660 lbs. and working ranges around 8 to over 30 feet.

Circle 283 on Reader Service Card

Scales for Industrial Use:

The Exact Weight Scale Co. offers a new 8-page brochure on its Shadograph scales designed for industrial use. It contains numerous illustrations, detailed specifications, and important features of 34 different models ranging in capacity from 2000 mg up to 100 pounds.

Circle 284 on Reader Service Card

Drives for Industry:

An 8-page booklet, "The Moving Force of Industry", available from Reliance Electric and Engineering Company, describes a complete line of motors, motor-generator sets, controls and drives.

Circle 285 on Reader Service Card

Tools For Palletless Handling:

Illustrated descriptions and tabulated specifications on fork truck attachments for palletless handling are included in a number of bulletins from Cascade Manufacturing Co. Equipment covered includes load grabs in basic design, revolving, and side shifting—all hydraulically operated—and box grab arms.

Circle 286 on Reader Service Card

Converting to LP-Gas?

A brochure from Fleet conversions describes the company's LP-Gas conversion kits. One of the newest developments is the Fleetmount-ICC for installation of ICC cylinders on either flat curved surfaces.

Circle 287 on Reader Service Card

For Accurate Feeding:

Designed to feed any dry material (lumps or fine powder, light or heavy material dependably and accurately over a 40-to-1 adjustable feed rate, the Omega Universal Feeder is described in an 8-page bulletin issued by Omega Machine Co.

Circle 288 on Reader Service Card

Electric Hoist Reference:

A bulletin provides full specifications and illustrated details of the "Detroiter" electric hoist, product of Detroit Hoist and Machine Co. The equipment is in the medium capacity range of 1000 to 4000 pounds and furnished in all combinations of suspensions and mountings, shown in dimensioned sketches. A table lists principal characteristics in relation to sizes and capacities.

Circle 289 on Reader Service Card

Describes Locking Feature Of Ladders:

New 8 to 12 step safety ladders, which roll easily into position and lock securely in place by means of a foot-operated floor lock that keeps the ladder from shifting when someone is working at high levels, are illustrated and described in a two-color sheet recently released by Tri-Metal Ladder Company. The lock is said to raise casters and lower the front legs of the ladder, locking it securely to the floor to prevent slipping or swaying. Ladders are painted in rust-resistant safety yellow, aluminum, gray or green and steps are ½" thirteen gauge or ¾" twelve gauge expanded metal to insure a firm footing.

Circle 290 on Reader Service Card

Corrugated for Heavy-Duty Packaging:

A 4-page folder from Tri-Wall Containers, Inc. describes basic types of bulk packs that can be made from the company's triple corrugated material. They include containers for chemicals, plastics, mechanical parts, textiles, produce and metal products, in capacities up to 3000 pounds. According to the manufacturer, the material is strong enough to withstand compressive loads up to 1000 pounds per lineal foot.

Circle 291 on Reader Service Card

How to Save on Packaging:

Case histories on how various manufacturers were able to save money through the latest in protective packaging for their product, are contained in "Package Laboratory News" issued by Hinde & Dauch. The house organ explains, with ample illustrations, how scientifically designed corrugated containers have economically protected such diverse products as carburetors, dinnerware and battery electrolyte fluid.

Circle 292 on Reader Service Card

Flexible Belting For Use Over Small Pulleys:

Conveyor belts engineered for small diameter pulleys are described in a bulletin just published by Main Belting and its parent company, The Russell Manufacturing Company. The belt combines the flexibility of solid woven belting with the superior strength and low elongation characteristics of stitched canvas conveyor belting. It can be used for general purpose conveying over pulleys or end rolls as small as 3½ inches in diameter or less. Currently available in three and four plies in a variety of widths, it can be supplied in any normal length required.

Circle 293 on Reader Service Card

Firm—But Gentle—Handling:

Literature from The Presray Corporation tells about the Pneuma-Grip, a handling device for picking up and carrying fragile and heavy objects. Originally designed to handle abrasive wheels, it consists of an air-filled, rubber "tire" inside a concentric steel ring. When inflated, the broad surface of the tire grips objects gently, but firmly.

Circle 294 on Reader Service Card

Comprehensive Caster Catalog:

Tabulated specifications, photographs, exploded views, and drawings are included in a 28-page catalog designed by the Aerol Company to simplify the selection of the firm's casters and wheels. This catalog replaces all previous printings. Information is indexed by capacity classifications, which are also defined.

Circle 295 on Reader Service Card

Film On Handling Concrete Products:

Handling methods for concrete block, pipe and precast products from raw material stage to storage and delivery of finished product are shown in a 17-minute motion picture produced by Hyster Company. Sequence-type movie shots show the detailed steps in these handling techniques which were developed by leading concrete plants to reduce handling costs and breakage and increase production. Lift trucks with load capacities ranging from 4000 pounds to 20,000 pounds are filmed in a variety of applications. The stripping of an autoclave with a lift truck running on standard tires over steel plates and the quick loading of blocks with the use of side-shifting aprons are but two of the interesting applications covered.

Circle 296 on Reader Service Card

Monorail Electrification Won't Shock:

To provide complete information about its new polyvinyl chloride shielded electrification for overhead handling systems, the American MonoRail Co. has published bulletin KS-1. The eight-page booklet shows numerous advantages of Kant-Shock Shielding as applied to American MonoRail Track and crane systems.

(Also reviewed in July)

Circle 297 on Reader Service Card

Instructions On Fastener Selection:

Cartoon illustrations are effectively used in an information bulletin covering the selection, installation and removal of Klimp fasteners, product of North American Aviation. This fastener is an L-shaped spring clamp which replaces nails in cleated panel box assembly. Special tools are not essential, but there is available a broad-end claw hammer, with which fasteners can be secured and removed at will.

Circle 298 on Reader Service Card

Techniques For Handling Lumber:

Applications of high-capacity fork-lift trucks and straddle carriers in the lumber industry are shown in a 16-page, pocket-size booklet now available from the Industrial Truck Division, Clark Equipment Company. Emphasis is on action photographs rather than text. Twenty illustrations show handling techniques for pulpwood, logs and raw and finished lumber in storage yards, at mills, in drying areas, in processing plants and in warehouses.

Circle 299 on Reader Service Card

Caster Buying Guide:

The Hamilton Caster & Mfg. Co. will send you a 56-page catalog which presents its expanded line of industrial casters and wheels. It was designed to serve as a ready reference buyer's guide. It is classified and cross indexed for convenience in quickly determining caster and wheel types and sizes for specific applications.

(Also reviewed in July)

Circle 300 on Reader Service Card

Storage Racks and Steel Bulk Bins:

Specifications, easy-to-follow-charts for planning storage needs, and diagrams which demonstrate the "Float Wedge Construction" principle for instantaneous readjustment are contained in bulletin BB-956 issued by Sturdi-Bilt Engineering Co. In addition to a specification chart for easy planning, this brochure has suggestions for multiple uses, with photographs of actual storage rack installations.

(Also reviewed in June)

Circle 301 on Reader Service Card

Details Unloading System:

A pneumatic conveying system for rapidly unloading cars of dry pulverized and granular materials is the subject of bulletin released by Sprout, Waldron & Co., Inc. It is a negative pressure or vacuum system in which the centrifugal fan is located on the opposite side of the collector from the material conveying line so that the product does not pass through the fan. The system employs a light aluminum nozzle attached to several lengths of flexible hose to provide the necessary movable extension between the carrier being unloaded and the permanent piping of the installation.

Circle 302 on Reader Service Card

Crane Design And Application Data:

Complete specifications, construction details, design features and illustrated applications are given in a 32-page brochure (Bulletin 12-P) covering Clyde Whirleys, produced by Clyde Iron Works, Inc. Photos cover work with hook, magnet or bucket at industrial plants and shipyards, on deck, dock and construction jobs.

Circle 303 on Reader Service Card

No Stapling, Gluing, Taping . . . Cartons Seal Themselves:

Dry adhesives on Presseal container flaps fuse together on contact, sealing cases securely and swiftly at hand pressure without any sealing equipment. The same hand motions which close the box also seal the flaps. There is no wasted time, motion or labor. Presseal containers stay tightly closed indefinitely, yet open easily with the pull of a hand. They are described in a folder from the manufacturer, Growers Container Corporation.

Circle 304 on Reader Service Card

Lists Features of Weather-Protected Motors:

Features which contribute to the outdoor dependability of Allis-Chalmers weather-protected motors in ratings from 250 to 900 hp are described in a bulletin released by the company. The motors feature a sturdy steel frame, a removable pre-wound split sleeve bearings, removable air ducts, and protective screens. The motors are particularly suited for electric utilities, water works, pipelines, refineries, paper mills, metallic and non-metallic mining, and chemical industries.

Circle 305 on Reader Service Card

Gives Principles of Hydraulic Torque Converter Drive:

Principles of hydraulic torque converter drive for use in crawler tractors, are outlined in literature available from the Construction Machinery Division, Allis-Chalmers Manufacturing Co. Photographs show the torque converter drive-equipped tractors on various types of jobs.

Circle 306 on Reader Service Card

Push-Button Freight Car Positioning:

The Jones Machinery Division of Hewitt-Robins, Inc. has published a 32-page booklet on car pullers. The booklet contains a description of several installations and describes various types of push-button controlled car pullers for moving freight cars, barges, scrap buggies, furnace cars and many types of industrial transfer cars.

Circle 307 on Reader Service Card

How to Use Rubberized Hair:

Methods of using rubberized hair in die-cut, laminated and molded forms are shown in literature published by and principles of package design are discussed.

(Also reviewed in July)

Circle 308 on Reader Service Card

Describes Truck Maintenance School:

The field service school of the Industrial Truck Division of Clark Equip-

ment Co. now has available an eight-page brochure describing the facilities, methods of teaching and course of study. The school schedules regular three-week courses in maintenance and repair of Clark's gas, electric and LP-Gas powered fork trucks, powered hand trucks and straddle carriers. Clark customers may enroll in the courses at no cost.

(Also reviewed in July)

Circle 309 on Reader Service Card

Do-It-Yourself Conveyor Installations:

How to plan and install your own conveying system is covered in easy step-by-step style in a 20-page booklet available from A. B. Farquhar Div., The Oliver Corp. It provides sketches of the numerous types of conveyor elements which may be required, condensed tables of specifications, graph paper to plot conveyor lines to scale, a comprehensive check list, grade and inclination charts (with instructions for calculations), and a number of typical installation plans.

Circle 310 on Reader Service Card

Even Dock Curbing Is Portable Now:

Magserco portable dock curbing enables variations in loading locations along a dock without sacrificing safety. A data sheet available from Magnesium Service Co. shows the ease with which the light weight curb sections may be rearranged to suit any requirement.

(Also reviewed in July)

Circle 311 on Reader Service Card

Jib Crane:

A data sheet from LeTourneau, Inc., supplies specifications and features of an all-electric-powered, 360 deg. revolving jib crane. Pillar or base mounted, it comes in capacities from 6 to 15 tons.

Circle 312 on Reader Service Card

Fatigue-Cutting Containers:

A 4-page brochure from Continental-Diamond Fibre Corporation illustrates and describes the company's line of lightweight, vulcanized fibre containers. They are said to increase production by cutting worker fatigue and eliminating useless dead weight. The line includes trucks, trays, boxes, baskets, cans and barrels.

Circle 313 on Reader Service Card

Suggests Applications For Pallet Truck:

A bulletin describing a one-ton capacity hydraulic hand pallet truck has been issued by The Raymond Corp. It illustrates recent changes and improvements made in the truck. New reinforced handle, relocation of grease fittings for easier servicing and stronger alloy steel axles are among the construction features discussed. Suggested applications for the truck are illustrated by sketches, and actual on-the-job photos show it in use in customers' warehouses.

Circle 314 on Reader Service Card

Blocks for Builders:

Tackle blosks designed to meet the requirements of contractors and builders are the subject of a new booklet available from Madesco Tackle Block Co. Included are complete details and specifications of a variety of blocks and accessories. In many instances suggested uses are listed.

(Also Reviewed in July)

Circle 315 on Reader Service Card

Tight Turning Truck:

The Hustler Pug is a 3000 pound capacity fork truck which claims an extremely short turning radius as one of its outstanding features. A brochure distributed by Hustler Corp. reports that the Pug will make money for the user by reducing non-productive aisle space and by increasing operator efficiency. Among other features highlighted in the literature are, a hydraulic "package", automatic electric forward and reverse controls, and airplane type hydraulic lift-lower and tilt controls.

(Also Reviewed in July)

Circle 316 on Reader Service Card

Lab Report Describes Adhesives:

Polyvinyl acetate resin emulsion adhesive E-2131 is described in a lab report just published by Paisley Products, Inc. This adhesive has a compatibility with dextrine adhesives, allowing substantial cuts in costs of packaging adhesives. The report describes the properties and methods of application of the new compound. It is used cold, and has a delivered viscosity of 2100 cps. It can be applied by roll, transfer, pickup, extrusion or spray in high-speed sealing equipment.

Circle 317 on Reader Service Card

3-Wheel Tractor Data:

A booklet giving specifications and performance data on the new "All Purpose Model" Tow-Bear is offered by Tow-Bear Division, Hudson House. The new design encompasses the best features of two previous models. Tow-Bear is a 3-wheel hydraulic-electric tractor using industrial or automotive batteries.

(Also reviewed in June)

Circle 318 on Reader Service Card

Discusses Idlers For Belt Conveyors:

An 8-page bulletin describing the complete line of belt conveyor idlers has been issued by The C. O. Bartlett & Snow Company. Troughing, flat, self-aligning, rubber disc and return designs are illustrated and described. Construction, standard sizes, dimensions and weights are also given.

Circle 319 on Reader Service Card

How Air Saves Dollars:

"How to Pull Dollars Out of Thin Air" is the title of brochure from Fuller Co. Fuller-Kinyon conveying systems, Airveyors and Airslides are explained. A comprehensive table lists 97 types of materials which can be handled by Fuller Equipment and tells which of Fuller's three kinds conveying equipment are best suited to each material.

(Also reviewed in July)

Circle 320 on Reader Service Card

Easy-To-Use Strapper:

The use of aluminum in the construction of the Signode SFC strapping machine makes it extremely light and easy to handle. A two page bulletin available from Signode Steel Strapping Co. gives the details and illustrates its simplicity of operation.

(Also reviewed in July)

Circle 321 on Reader Service Card

Advantages of Fiber Glass Tote Pans:

According to a new brochure published by G. B. Lewis Co., tote pans molded of fiber glass reinforced polyester answer a great number of in-plant handling problems. The pans will not rust, rot, shatter or dent. They resist water ,oil, and most chemicals, are nonconductors of electricity and withstand temperatures extremes. They stack and nest in their own dimensions by means

USEFUL LITERATURE

Continued

of a contour offset design. Many styles and sizes are described and illustrated in the free pamphlet.

Circle 322 on Reader Service Card

Push-Button Order Filling:

Want to know how one operator at a console can control a complex order picking system? It is being done at Gallo Sales Co. where 66 gravity roller storage lines in a three-deck arrangement are controlled entirely by push buttons. The system, developed by Mathews Conevyer Co., is described and illustrated in detail in a folder which was published recently.

(Also reviewed in July)

Circle 323 on Reader Service Card

Compares Cost of Gas, Electric:

The cost of operating gas versus electric trucks is the subject of the new Lewis-Shepard brochure, "Facts About Fork Trucks". The literature offered a comparison of depreciation, maintenance and power costs for both types, and includes operating cost record sheets for readers to use in their own plants.

Circle 324 on Reader Service Card

How Bulk Packaging Saves:

Savings made possible by shipping chemicals in corrugated bulk containers are covered in a four-page brochure published by Gaylord Container Corp., Division of Crown Zellerbach Corp. Case histories illustrating various types of corrugated boxes which have been successfully used in the chemical industry are included.

(Also reviewed in July)

Circle 325 on Reader Service Card

Fool-Proof Heat-Sealing:

The Sentinel "3-R" system of heat-sealing is based on the simultaneous application of the right heat, right pressure and right dwell time. Complete details are included in new literature from Packaging Industries, Inc.

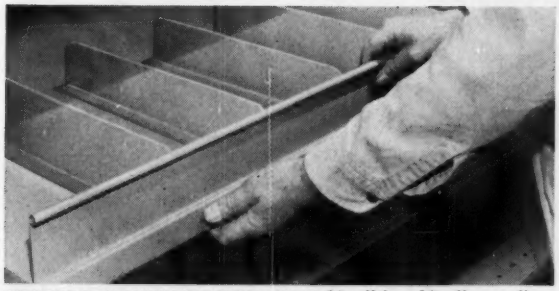
(Also reviewed in July)

Circle 326 on Reader Service Card

Bulletin Covers Complete Lines Of Industrial Trucks:

The complete line of industrial trucks manufactured by Baker-Raulang Company, is described in the company's Bulletin 57. Included in the bulletin are gasoline and LP-gas fork lift trucks in capacities from 1000 to 7000 pounds; electric fork trucks in capacities from 1000 to 15,000 pounds; electric platform trucks to 10,000 pound capacity; and

Only New HALLOWELL *ERECTOMATIC*® Steel Shelving



STRAIGHT-IN, STRAIGHT-OUT SHELF CHANGE. No tilting. No dismantling. No interference with any other shelf.

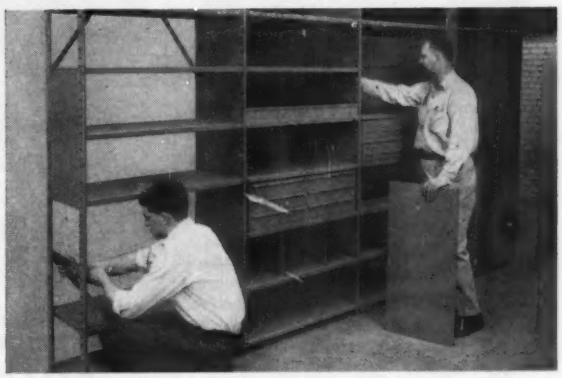
cuts assembly time, permits fast repositioning of shelves —gives you these plus features

No matter what type of shelving you need—open, closed, bin units, ledge units, counters or cabinets—new Hallowell ERECTOMATIC® steel shelving makes the job easy. The unique built-in locking device*—developed by SPS—speeds assembly and rearrangement of shelves. To position a shelf, slide it into place on the shelf supports, press the locks, and the shelf is locked. To reposition a shelf, release the locks, pull the shelf straight out, slide it straight in on its supports at the new location, and press the locks. It takes only seconds to do the complete job. Made of prime steel, phosphate coated, and finished in SPS green baked-on enamel—other colors are available. Hallowell ERECTOMATIC steel shelving is stocked by leading industrial distributors and shop equipment dealers. For complete information, see the one nearest you. Or write Hallowell Shop Equipment Division, STANDARD PRESSED STEEL CO., Jenkintown 49, Pa.

*Patent applied for

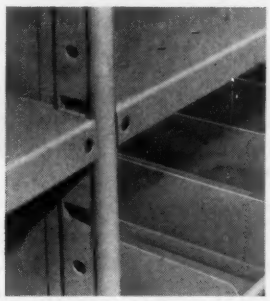
INDEPENDENT SHELF POSITIONING. Each shelf can be repositioned individually in seconds.

FULL USE OF SHELF AREA. No tees or angles, and beaded posts save valuable space.



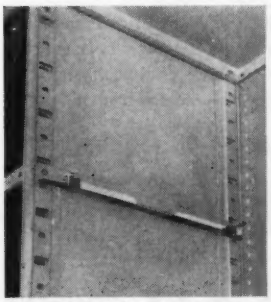
TWO MEN ASSEMBLED new Hallowell ERECTOMATIC steel shelving in just over 10 minutes. Closed unit was 36 in. wide, 18 in. deep, 7 ft. 3 in. high, complete with seven shelves. Standard models of other design required 13-55 min. Table shows test results.

COMMON SIDE PANELS AND POSTS save material between adjacent units in a rack. Back and side panels are one-piece.



BEADED POSTS AND FLANGED SHELVES prevent snagging of clothing or stored goods, protect workers.

Brand	Time to Assemble (Min.)	Units Per Hour
Erectomatic	10.42	5.75
A	13.23	4.53
B	14.24	4.21
C	16.30	3.68
D	18.12	3.31
E	25.03	2.40
F	55.03	1.09



FULL DEPTH SHELF SUPPORT. No buckling possible. Reinforcements can be added when required.

4 CLASSES OF SHELVES. Regular, medium, heavy and extra-heavy construction meets all load requirements.

HALLOWELL® SHOP EQUIPMENT DIVISION

STANDARD PRESSED STEEL CO.

SPS

JENKINTOWN PENNSYLVANIA

Circle No. 138 on Reader Service Card for more information

USEFUL LITERATURE

Continued

electric crane trucks to 10,000 pound capacity. Also described is the side-loading fork truck in a 4000 pound electric model and internal-combustion engine models from 6000 to 12,000 capacity.

Circle 327 on Reader Service Card

Caster Buying Guide:

The Hamilton Caster & Mfg. Co. will send you a 56-page catalog which presents its expanded line of industrial casters and wheels. It was designed to serve as a ready reference buyer's guide. It is classified and cross inedxed for convenience in quickly determining caster and wheel types and sizes for specific applications.

Circle 328 on Reader Service Card

Case Opener-Former:

The Formnumatic machine, subject of a data sheet from Schroeder Machines Corp., is claimed to be a new engineering achievement in automatic packaging machinery. Entirely pneumatically driven, it automatically selects a flat case, advances it, applies glue, opens and forms, folds in the bottom flaps and seals. It is only nine feet long and approximately 22 inches wide.

(Also reviewed in July)

Circle 329 on Reader Service Card

Expendable Pallet Data:

The National Wooden Pallet Manufacturers Association has published a booklet entitled, "What You Should Know About Expendable Pallets". It gives valuable information on how to order expendable pallets, types, construction standards, types of fastenings tolerances and rules for application.

(Also reviewed in July)

Circle 330 on Reader Service Card

Clamps, Clamps, Clamps:

Dozens of varieties of clamps and other material handling devices are illustrated and described in a 24-page booklet published by Merrill Brothers. Sheet clamps, drum lifters, tilters, drag clamps, chain slings, tong lifts and numerous items are included.

(Also reviewed in July)

Circle 331 on Reader Service Card

Specifications on Powered Crawler Tractor:

A fold-out specification sheet covering the HD-16 diesel powered crawler tractor is available from the Construction Machinery Division, Allis-Chalmers Manufacturing Company. It features a cutaway view of the tractor that shows both the gear-type and the hydraulic

torque converter drive transmissions, and many of the mechanical, design and construction highlights.

Circle 332 on Reader Service Card

Unitized Two-Way Radio:

Bendix 25-54 mc. two-way radio features unitized plug-in chassis construction for flexibility, convenient maintenance and quick economical servicing. The transmitter and receiver strips in the base stations are, in all respects, identical to the corresponding strips in the mobile units, thus providing complete interchangeability simply by transposing a single plug. The complete line of two-way radios is described in a brochure available from Bendix Radio Division of Bendix Aviation Corp.

(Also Reviewed in July)

Circle 333 on Reader Service Card

The Raymond Story:

A booklet published by The Raymond Corp. tells the story of "You and the Raymond Corp." It has been written in several sections with chapters addressed to customers, employees, sales representatives, investors, suppliers, neighbors and members of the material handling industry. It is being distributed in recognition of 35 years of association with the company by George G. Raymond, Sr.

(Also Reviewed in July)

Circle 334 on Reader Service Card

Technical Specs on 2,240 Hydraulic Power Units:

Complete technical data and specifications on 2,240 different types and models of pumps, single and duplex pressure switches, hydraulic cylinders and a full line of accessories including tube connectors, valves, hydraulic hose and fittings, tubing and gauges are incorporated in a catalog issued by Oil-Dyne, Inc. Units for pressures to 3000 pounds, with peaks up to 5000 pounds are discussed.

Circle 335 on Reader Service Card

Fork Truck For Outdoor Handling:

Information on the construction, operating characteristics and specifications of the "Ranger" line of fork trucks is provided in an 8-page catalog by the Industrial Truck Div., Clark Equipment Co. The three models of this equipment —15,000, 20,000 and 30,000 lbs. capacity—designed for outdoor handling, are covered. Tables and charts detail information on operating features and specifications. Color drawings indicate some typical applications.

Circle 336 on Reader Service Card

Strapping Stories:

Articles on the latest money-saving methods of baling waste paper, strapping paperboard containers and coils

USEFUL LITERATURE

Continued

of strip steel are featured in the Spring, 1957 issue of "The Signode Seal". Copies of the publication, now in its 40th year, providing helpful information for advancement of good packaging, shipping and handling, are available from Signode Steel Strapping Co.

(Also reviewed in July)

Circle 337 on Reader Service Card

Illustrates Electric Truck In Cotton Industry:

A four-page folder, illustrating and describing the first electric-powered cotton compress truck, field proven under actual operating conditions, has just been published by The Elwell-Parker Electric Co. The truck, known as Model F-45T, has been specially designed to meet the continuous and severe handling encountered in the cotton industry. According to the manufacturer, the electric power provides for nine to ten-hour continuous operation, yet at the same time, eliminates dangerous gas fumes and fire hazards. The literature contains nearly a dozen illustrations, many of which show the truck in operation, plus engineering drawings detailing specifications.

Circle 338 on Reader Service Card

Describes Portable Conveyors:

Cleated belt power units that convey parts from one operation to another or to tote boxes and permit operators to remain at their posts for continued productive work, are discussed in a pamphlet released by Arrow Products, Inc. Arr-O-Parts-Veyor's eliminate the lifting and tugging accident hazard and lend themselves to setting up production lines or altering existing lines.

Circle 339 on Reader Service Card

Tire Handbook:

The Monarch Rubber Co. has announced the availability of a complete catalog and handbook on its line of industrial solid tires. The catalog contains descriptions and illustrations of standard and special types of Monarch tires, data on comparative performance tests and other information. A separate 20-page booklet, contained in a pocket on the inside back cover of the bulletin lists current specifications for almost all makes of lift trucks.

(Also reviewed in July)

Circle 340 on Reader Service Card

Edge-Wrap Packaging:

Simplicity in packaging a variety of fragile products is provided by Susrap a pre-formed fibre board wrap-around packaging material. Literature available from Vanant Co., Inc. illus-

USEFUL LITERATURE

Continued

trates the use of Sus-Rap for protecting windshields, mirrors, clocks, instruments, lighting fixtures, and many other easily damaged items.

(Also reviewed in July)

Circle 341 on Reader Service Card

Power-Free Conveyor Data:

A two-page bulletin from E. W. Buschman Co. tells the story of Buschman Triple-T Power-Free Conveyor. The conveyor is said to be ideal for handling light to medium weight loads. Materials can be moved along a level track, up and down inclines and through tongue switches. They can be automatically switched to the left or right, onto free lines for storage or for operations where the product must not move. All switches can be manually controlled or operated by air cylinder and solenoid valve.

(Also reviewed in July)

Circle 342 on Reader Service Card

Engineered Systems:

Planet Corporation has published a brochure, "Plan with Planet", which describes a number of engineered and automated handling systems. Equipment for bulk and unit materials, automated and special handling machinery and foundry equipment are included.

Circle 343 on Reader Service Card

Electromagnetic Control Catalogs:

The Automatic Switch Co. has issued seven new Electromagnetic Control Catalogs: Catalog 57-S1 provides information on Automatic Transfer Switches; Catalog 57-S2 covers the ASCO line of remote control switches; Catalog 57-S3 describes ASCO magnetically held contactors; Catalog 57-S4 deals with ASCO relays; Catalog

Michigan Model 12B handles 300 tons of sand daily . . .

Hewitt-Robins foundry formerly needed 2 loaders to keep up with muller—now does it with one

Until a year ago, the Jones Machinery Division of Hewitt-Robins, Inc. required two industrial tractor shovels to load foundry sand into the muller and distribute it to molding stations. One loader couldn't keep up with the muller, so the second loader was needed during peak periods. When management decided to replace their oldest loader, they requested on-the-job demonstrations of leading makes. After they had seen them all, they bought a Michigan Model 12B. It could keep up with the muller by itself, even during peak periods.

Travels 300 ft through narrow aisles

The principal job of the 16 cu ft Michigan is sand handling. Round trips from muller to molding stations average 300 ft through narrow aisles and supporting columns. The Model 12B handles 300 tons of sand per day: loads 105 tons into muller, distributes 90 tons to stations (balance goes by over-head crane and sand slinger) brings back 105 tons of burned-out sand to the pile. The Model 12B just "walks" into the sand, works bucket and comes out with heaping loads. With power-shift transmission, the Model 12B gets in and out fast, saves vital seconds on every cycle.

Why Hewitt-Robins bought the Michigan

The management group agreed the Michigan was "an excellent machine for the money"—and that its 20 per cent greater weight and power than most machines in its class would help speed material handling. In addition, the Model 12B was the only Tractor Shovel in its size-range with power-shift transmission which eliminates clutch pedal and engine clutch; and the only machine with planetary-wheel drive axle, which eliminates broken axles.

How to buy a tractor shovel

During its on-the-job demonstration, the Model 12B *clearly* proved its ability to move more tonnage at less cost. Make your own comparison: don't buy an industrial Tractor Shovel until you've seen Michigan in action. Write to arrange a demonstration—you name the jobs you want to see done!

Michigan is a registered trade-mark

CLARK EQUIPMENT COMPANY

2445 Pipestone Road
Benton Harbor 5, Michigan

In Canada:
Canadian Clark, Ltd., St. Thomas, Ontario

CLARK® EQUIPMENT

Circle No. 40 on Reader Service Card for more information

USEFUL LITERATURE

Continued

57-S5 includes information on A-C and D-C ASCO solenoids; Catalog 57-S6 describes ASCO electric plant controls; Catalog 57-S is the complete Electromagnetic Control Catalog combining information the other six publications. Any of the books will be furnished if asked for on company letterhead. Address, Automatic Switch Co., Florham Park, N. J.

(Also reviewed in July)

Circle 344 on Reader Service Card

Nationwide Pallet Service:

Atlas Pallet & Lumber Sales, Inc. reports, in a recently issued four-page bulletin, that prompt service and freight savings are assured by its nationwide network of pallet mills. Outstanding features of Atlas pallets are described in the literature.

(Also reviewed in July)

Circle 345 on Reader Service Card

Lumber Strapping System:

A strapping system which cuts cost of packaging and handling lumber is the subject of a four-page brochure from Brainard Steel Division of Sharon Steel Corp. Photographs and data tell how the system cuts costs both at the mill and at the lumber yard.

(Also reviewed in July)

Circle 346 on Reader Service Card

Why Automatic Drives?

The advantages of torque converter drive for lift trucks are described in specification sheets on the Hystamatic Drive for Hyster lift trucks. They are available from Hyster Company.

Circle 347 on Reader Service Card

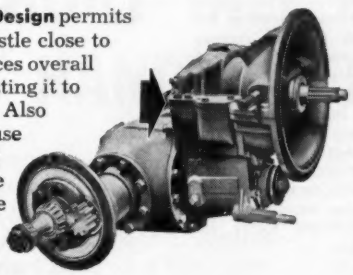
Car Loading Instructions:

"How to load and unload cars with Evans DF Loader Equipment" was written by Evans Products Co. to show how easy it is to load and unload cars

The drive in your lift truck can give you a selling edge

IF YOU USE TIMKEN-DETROIT® TRANSMISSIONS AND AXLES

A fork truck is a work horse. Its worth to your customers is measured in terms of its output, compactness, and freedom from maintenance. That's why Timken-Detroit drive components can be an important selling advantage for you. We know the requirements of fork trucks . . . how to build fork truck axles to give the most in service and trouble-free operation.

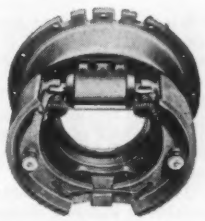


Off-Set Front Wheel Design permits the truck boom to nestle close to the chassis. This reduces overall vehicle length, permitting it to operate in tight areas. Also saves on weight because the counterbalance at the truck's rear can be much lighter. The axle and transmission are made as an integral unit, doing away with drive lines and universal joints.

Clutch Repair Is Far Easier. Exclusive split housing for clutch and transmission permits quick clutch changes. Clutch replacement can be made in twenty minutes merely by removing cap screws at the housing parting line, shown by the arrow in the picture above.

Less Wear With Totally Enclosed Wheel Drive. This original Timken-Detroit feature provides an effective guard against dirt . . . gives constant lubrication. Oil level plugs are easily accessible for normal maintenance.

Far More Accurate Control With Heavy Loads. Exclusive Timken-Detroit FSH brake offers unequalled control and stopping power. The brake shoes operate with a floating action that distributes lining loads more evenly and gives highly dependable action *in either direction of travel.*



Timken-Detroit drives utilize a constant mesh transmission. Helical gears never clash during shifting, will not chip or mushroom. These transmissions and axles are available for interchangeable use with either gas or electric power. A high percentage of standard parts are used throughout, greatly reducing parts inventory and simplifying maintenance.

For full information on this complete line of material handling equipment components, call Timken-Detroit Axle Division today.

World's Largest Manufacturer of Axles for Trucks, Buses and Trailers

TIMKEN Detroit AXLES
TIMKEN-DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN
The Accepted Standard

Plants at: Detroit, Michigan Oshkosh, Wisconsin Utica, New York Ashtabula, Kenton and Newark, Ohio New Castle, Pennsylvania

Circle No. 167 on Reader Service Card for more information

USEFUL LITERATURE

Continued

fitted with Evans DF Loader Equipment. Its 24 pages tell how to plan the load, how to install doorway members and bulkheads, how to load upper decks, how to brace heavy sections, how to load door space and how to store extra equipment. It has a great number of illustrations of typical loads accompanied with loading diagrams.

(Also reviewed in July)

Circle 348 on Reader Service Card

Aluminum Pipeline Couplers:

Now you can pump pressures up to 1000 PSI in portable aluminum pipelines according to the John Bean Division of Food Machinery & Chemical Corp. Recent literature illustrates the simplicity of design of the FMC fast move coupler and the quick positive lock which it provides.

(Also reviewed in July)

Circle 349 on Reader Service Card

Subscription Available:

The Lewis-Shepard Lever, a magazine prepared especially for fork truck users, is offered to interested persons by Lewis-Shepard Products, Inc., on a free subscription basis. The winter issue, now available, features a completely illustrated story on how latest material handling methods saved $160,000 in a single year for a food manufacturer.

Circle 350 on Reader Service Card

Practical Handling Ideas:

A variety of practical ideas for handling concrete products with industrial trucks and attachments is presented in a 26-page booklet published by Hyster Company. The informative booket, titled "Effective Ideas for Handling Concrete Products", reveals many techniques developed by concrete products manufacturers.

Circle 351 on Reader Service Card

NEW SHORT YALE ELECTRIC TRUCK FOR FAST HANDLING IN NARROW AISLES

This new Yale truck—only 68¼" from front face of forks—is the shortest 3,000-4,000 lb. capacity sitdown electric truck in the complete Yale line of industrial lift trucks. New Yale K51W Electric Trucks are highly maneuverable...stack loads quickly and easily in a 9'10" aisle... make full use of warehouse space.

Moreover, every feature that promotes greater efficiency and safety is built into these sturdy, flexible Yale trucks as *standard* equipment: "Dead-Man" control automatically shuts off power and applies brakes when the operator leaves his truck... Yale's exclusive magnetic Cam-O-Tactor controls speed increase by automatic time-delay setting for smooth acceleration...15° tilt-back provides extra load stability when truck is in transit, and greater handling ease in narrow aisles...full 110 sq. inch braking surface assures fast, smooth stops ...side-thrust rollers—on both carriage and channel—minimize friction and stress, compensate for off-center loading.

For full facts about new 3,000 and 4,000 lb. capacity Yale K51W Electric Trucks, send for Bulletin No. 5150A, The Yale & Towne Mfg. Co., Phila. 15, Pa., Dept. A-48.

To meet the need of expanding industries for better materials handling methods, look to Yale for advances in research, engineering, manufacturing, sales, service—as

YALE BUILDS FOR THE NEW ERA

YALE* **INDUSTRIAL LIFT TRUCKS AND HOISTS**

*REG. U. S. PAT. OFF.

Gasoline, Electric & LP-Gas Industrial Lift Trucks • Worksavers • Warehousers • Hand Trucks • Hand and Electric Hoists

Circle No. 156 on Reader Service Card for more information

USEFUL LITERATURE

Continued

Blower Folder:

New four-page two-color folder 8½ x 11 in., is available on request, giving engineering details and technical specifications of a compactly designed product for handling air or any other gas under pressure of vacuum. The folder includes a cutaway photo of the interlocking main and gate rotor assemblies; a cross-sectional diagram to show component parts; performance charts and four tables to aid selection of the proper size of blower.

Circle 352 on Reader Service Card

Double Pilot Check Valves:

Two new catalog sheets, illustrating and describing its ¼ inch, ⅜ inch and ½ inch double pilot check valves, have just been published by Fluid Controls, Inc. One of the sheets details operation and design features. The other sheet features dimensional drawings giving complete specifications.

Circle 353 on Reader Service Card

All-Purpose Lubricant:

A pamphlet furnished upon request is available from the Protecto Lube Company, describing in detail Primaleen, an all purpose lubricant now available nationally. The pamphlet describes how the product cuts costs, direct and indirect, and can be applied up to 90 times less frequently than ordinary greases.

Circle 354 on Reader Service Card

How To Use Conveyor Chains:

A reference on applications for various types of conveyor chains and conveyors is offered by Chain Belt Co. Titled, "Conveyor Chains and Attachments," it is illustrated with line drawings and photos, includes discussions of designs and principles.

Circle 355 on Reader Service Card

for Unloading..

The new model HA "PAYLOADER" tractor-shovels are so compact and maneuverable that they are used extensively to load and unload boxcars and trucks as well as move bulk materials in and around plants and yards. They scoop up and carry 2,000 lbs. at a time at speeds up to 10 mph.

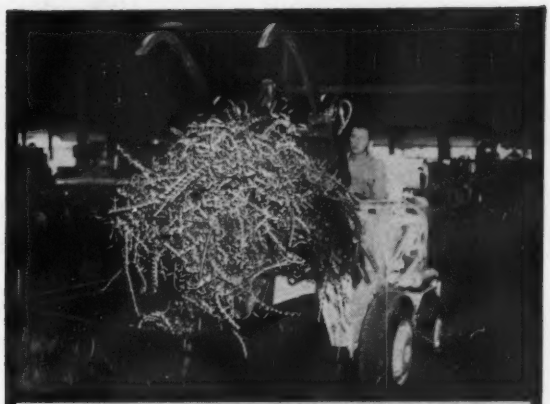
This basic "PAYLOADER" is more than an efficient bulk materials handling unit. For example; with the quickly-mounted Pick-up Sweeper attachment — in action below — it can be used to clean aisles, floors, driveways. The powered rotary broom sweeps cleanly into the "PAYLOADER" bucket, which dumps the accumulated load into bins or wherever desired.

Other attachments that make a "PAYLOADER" the machine of many uses include: fork lift; special buckets; castered scrap hoppers, scrap grab, snow plows. The Frank G. Hough Co., 731 Sunnyside Ave., Libertyville, Ill. 115

for Sweeping..

PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Circle 81 on Reader Service Card for more information



for Scrap..

If you have awkward, bulky materials that you want to scoop-up, carry and load or stockpile in lots up to 1,500 lbs. at a time, this Scrap-Grab attachment on a model HA "PAYLOADER" tractor-shovel is just the tool.

Metal turnings, wire coils, hides, bark and similar materials are tightly gripped between the five bottom forks and the powerful hydraulic upper grab arms while travelling. Loads are dumped where you want them — up to 6 feet high. Forks can tilt down to release the load and a hydraulic kick-out arm also makes sure all material is unloaded cleanly.

If you want to weigh each load as it is handled, you can have a dial scale connected into the hydraulic system. A nearby Distributor is ready to demonstrate the profitable model HA or a larger "PAYLOADER."

for more data..

THE FRANK G. HOUGH CO.
731 Sunnyside Ave., Libertyville, Ill.

☐ Send data on the model HA and Attachments
☐ Send data on larger "PAYLOADER" units (to 9,000 lb. cap.)

Name _____
Title _____
Company _____
Street _____
City _____
State _____

115

PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Circle 500 on Reader Service Card for more information

USEFUL LITERATURE

Continued

Designed for use in Replacement Field:

Fittings, socketless kits, and self-sealing couplings, are described and illustrated in a catalog released by Aeroquip Corporation. It is prepared for use in ordering Aeroquip parts and contains information on the company's standard industrial products. Instructions for ordering, installation planning and assembly are included.

Circle 400 on Reader Service Card

All-Weather Single Phase Motors:

New 10 and 15 hp all-weather, high torque, capacitor-start, capacitor-run single phase motors are featured in a bulletin offered by Robbins & Meyers, Inc. The new motors afford complete protection against weather, debris and small field animals. They are available in 1725 and 1140 rpm speeds.

Circle 356 on Reader Service Card

U. S. Dept. of Commerce Bulletins

Two package cushioning studies sponsored by the Armed Forces are available from the Office of Technical Services, U. S. Department of Commerce. "Performance Characteristics of Cushioning Materials Impacted Under a Heavy Weight High Impact Shock Machine", 253 pages, $5. (Order PB 121145). "Dynamics of Package Cushioning Involving Combined Rotations and Translations", 13 pages, 50 cents. (Order PB 121015).

Circle 357 on Reader Service Card

Selects Rubber Covered Hose

A rubber covered hydraulic hose selector is being offered free to users of hydraulic control hose, or to others who feel that these conductors of gases, liquids and greases might improve their product or maintenance operations. The selector contains the latest SAE and industry specifications on hydraulic hose, such as bursting strengths, working pressure required, bend radius, and weight per 100 feet.

Circle 358 on Reader Service Card

Portable Hydraulic Lift:

Literature available from Crown Controls Co., Inc. describes Crown E-Z Lift models, hand-operated portable hydraulic lifts. These material lifts are available in capacities of 500 and 1000 lbs, with platforms or forks. All models incorporate a safety overload release mechanism.

Circle 359 on Reader Service Card

Track Development:

A new brochure published by Caterpillar Tractor Co. tells the story of track performance and development. The 8-page booklet discusses track construction piece by piece, including track link design, track shoes, track bolts, pins and bushings. Spanish, French and Portuguese versions of the booklet are available.

Circle 360 on Reader Service Card

For Application Where Operation is Continuous:

Application data on dripproof and enclosed polyphase induction motors, ⅛ hp; frames 182-215; 208-220/440, or 550 volts; 60 cycles; is included in a four-page bulletin issued by General Electric Company. Publication includes charts showing single-speed ratings and frame sizes, typical speed torque curve, full-load currents. Cutaway drawings point out construction features. Dimension data is also included.

Circle 361 on Reader Service Card

Lubrication Cuts Packaging Costs:

"How Automatic Lubrication Cuts Packaging Costs" is described and il-

Cut your costs with ACME STEEL Dexion Slotted Angle

the Idea framing material for all installations

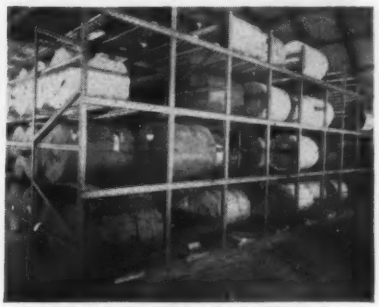
Frame whatever plant equipment you may need, including electrical installations, more easily, quickly and at reduced costs with Acme Steel Dexion Slotted Angle.

Dexion Slotted Angle measures, cuts and bolts together at the job site. Light and compact, Dexion Slotted Angle is packaged in 10-length units, complete with nuts and bolts.

For any kind of framing, Dexion Slotted Angle slot and hole patterns always match up, a special feature whether for custom building storage racks or hanging and installing electrical equipment. And strength factors allow stable, safe frameworks for holding hundreds of pounds. A wrench and the portable Dexion Cutter are the only tools needed. No drilling or welding . . . merely cut and bolt the pieces together to your exact specifications.

Cold-rolled, galvanized steel Dexion Slotted Angle is available in two sizes—standard and heavy duty. And it is completely reusable. A free Idea copy of the "Dexion Construction Guide" is yours for the asking. Just write Dept. FDD-87 Acme Steel Company, Chicago 27, Illinois.

ACME STEEL Dexion Slotted Angle frames tote pan rack for parts storage.



ACME STEEL Heavy-duty Dexion Slotted Angle racks weighty paper rolls.

ACME STEEL Dexion Slotted Angle used for stationary and mobile pallet racks.

ACME STEEL DEXION SLOTTED ANGLE

Circle No. 2 on Reader Service Card for more information

USEFUL LITERATURE

Continued

lustrated in a 6-page reprint now offered by Bijur Lubricating Corp. The literature presents six reasons for the current trend towards use of automatic lubrication equipment in various packaging and food processing industries. A typical Bijur system installed on packaging machinery is then described.

Circle 401 on Reader Service Card

Four Transmissions in One:

Model 5108 transmission offered by Snow-Nabstedt Gear Corp. combines forward, neutral, reverse and reduction into a single compact unit with smooth reversing under full load. Compact design saves vital space, and permits unlimited applications. The unit, described in a bulletin from the company, is approximately 9 inches long, 10 inches wide and 10 inches high.

Circle 362 on Reader Service Card

Weighs Adhesives, Sticky Liquids:

Even adhesive materials and sticky liquids can be accurately weighed with Servo Duplex Weighers, according to the manufacturer. Servo Weighers are fully described in a new eight page folder. They are produced by N. V. Servo-Balans, in Holland, and distributed in U. S. by Perry Metal Products Co., Inc. They totalize automatically the weight actually discharged, and their accuracy is not affected by remainders in the weigh hoppers. Capacities range from 3 to 300 tons per hour.

Steel tubing and fittings for vacuum No attendance or supervision is required.

Circle 363 on Reader Service Card

8000 Pound Capacity Electric Trucks

Model K51AT-80 Yale electric fork truck of the Lift King series is described and illustrated in a 2-page bulletin by The Yale & Towne Mfg. Co. The 8000 pound capacity trucks are described as having excellent driver visibility, higher stacking, higher lifting speed, low hydraulic pressure and finger tip controls for hoist, lift and direction.

(Also reviewed in June)

Circle 364 on Reader Service Card

Data On Flexible Conveyors:

A catalog on flexible and portable conveyors is available from Power-Curve Conveyor Company. Complete specifications and engineering date is included. Photographs show various types of conveyors and describe typical applications.

Circle 365 on Reader Service Card

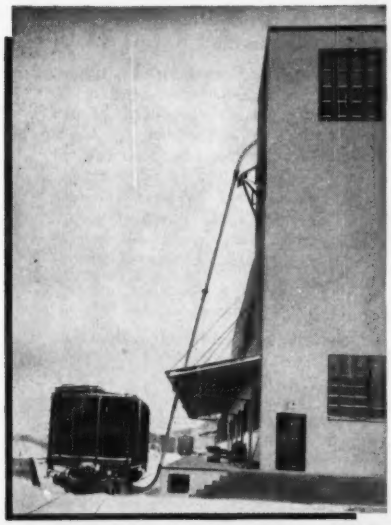
Preweights Material to Within 4 Ounces:

"Kraftpacker", a new automatic open mouth bag filling machine, will handle practically any free-flowing material faster, and with more accuracy, than any other machine, according to a new bulletin released by Kraftbag Corporation. Description of operation and explanation of important features, such as, required power and dimensions are included. The unit accommodates weights from 25 to 200 pounds and requires no air pressure.

Circle 366 on Reader Service Card

Describes Applications For Conveyor Systems:

Dispatching Materials Automatically, Storing and Banking Materials, Provid-



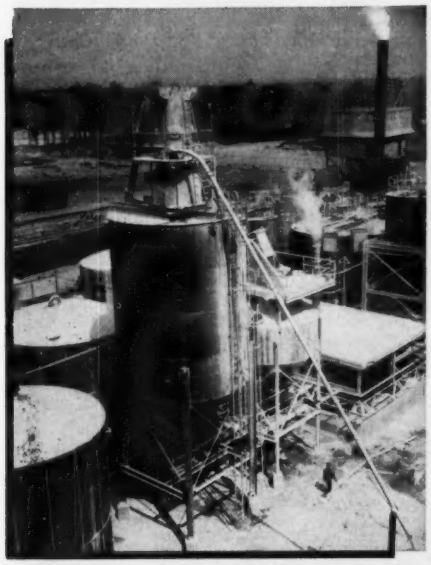
"Blue Chip" companies use the AIRVEYOR® in the pulp and paper industry

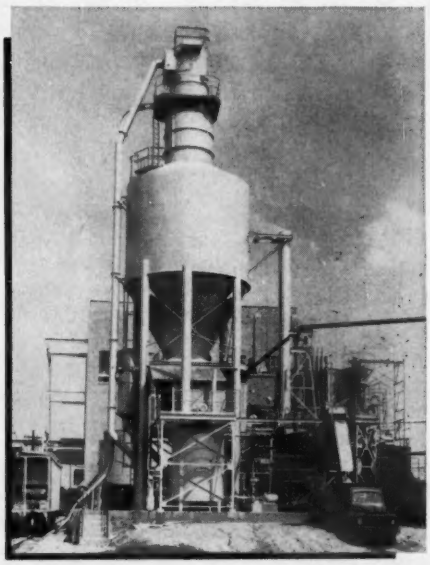
Down through the years, in fact, over a quarter of a century, the Airveyor Conveying System has served the pulp and paper industry —a job well done.

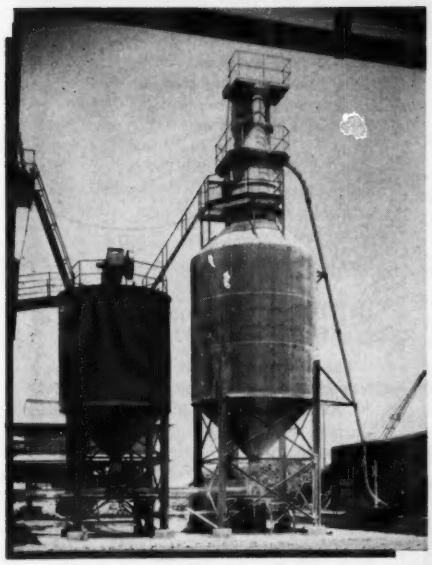
A glance at the list of users will prove our claim, that Fuller engineering and equipment satisfies and dominates the industry for clean, efficient handling of mill supply chemicals—soda ash, salt cake, lime, clays, and wood chips.

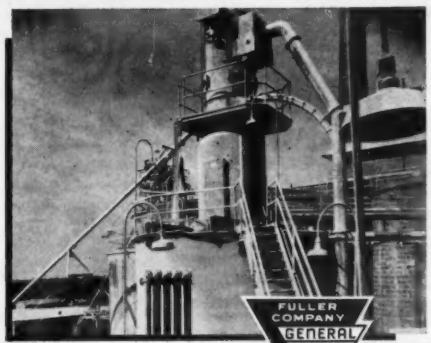
More than 140 Airveyor systems are in operation in the industry in the United States and Canada; individual company purchases ranging from one to twelve systems.

When you need conveying, you need Fuller. Our engineers are at your service, always ready to make a study of your requirements and recommend equipment for the improvement of your operation.









International Paper
Fibreboard Products
St. Regis Paper
Buckeye Cellulose
Hudson Pulp & Paper
Rayonier, Inc.
Georgia Kraft
Gaylord Container
Brown Paper Mill
Eastern Corp.
Fraser Paper
Oxford Paper
West Virginia Pulp & Paper
Tileston & Hollingsworth
Fitchburg Paper
Escanaba Paper
Blandin Paper
Minnesota & Ontario Paper
Brown Co.
Finch-Pruyn
Newton Falls Paper
Riegel-Carolina
Chillicothe Paper
Mead Corporation
Oxford-Miami
Crown-Zellerbach
St. Helens Pulp & Paper
Scott Paper
New York & Pennsylvania
Bare Paper
Glatfelter Co.
Bowaters-Southern
East Texas Pulp & Paper
Champion Paper & Fibre
Camp Mfg. Co.
Chesapeake Corp. of Va.
Puget Sound Pulp & Timber
Weyerhaeuser Timber
Consolidated W. P. & Paper
Kimberly-Clark
Ketchikan Pulp
MacMillan & Bloedel
Smith Paper Mills
Dryden Paper
KVP Company, Ltd.
Marathon Paper
Ontario Paper
Canadian International Paper
Canada Paper
North Western Pulp and Power
Canadian Forest Products
Elk Falls
Nekoosa-Edwards
Western Kraft
Franconia Paper

FULLER COMPANY
GENERAL AMERICAN
TRADE MARK

FULLER COMPANY
164 Bridge St., Catasauqua, Pa.
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
Chicago • San Francisco • Los Angeles • Seattle • Kansas City • Birmingham

A-221
3044

Circle No. 69 on Reader Service Card for more information

USEFUL LITERATURE

Continued

ing Different Load Spacings and Speeds for various production operations, Handling Indexing Operation, and Recirculating Loads are a few of the material handling applications described in a 16 page brochure available from the Jervis B. Webb Company. Illustration pictures taken in many different industries and showing the automatic handling of a variety of materials are also included.

Circle 367 on Reader Service Card

Facts on LP-Gas:

A complete and informative booklet on LP-Gas and LP-Gas carburetion equipment has been published by American Liquid Gas Corporation. It contains several pages of factual data regarding advantages, characteristics and operation. In addition, it explains the functions of various types of LP-Gas carburetion equipment and illustrates the products manufactured by Algas. Every phase of LP-Gas carburetion equipment including the fuel tank and necessary fittings is covered. Also explained in detail are the various types of conversion systems that are being used.

(Also reviewed in July)

Circle 368 on Reader Service Card

Complete Specifications for Entire Industrial Truck Line:

The complete line of fork-lift trucks, straddle carriers, powered hand trucks and towing tractors produced by the Industrial Truck Division of Clark Equipment Company is described in a catalog just published by the company. Specifications given for each model include capacity, turning radius, width, length, fork length, lift heights and service weight. Every machine is illustrated.

(Also reviewed in July)

Circle 369 on Reader Service Card

"Meaningful Marks":

A reprint of an article concerned with the marking of products and materials with trademarks, size, number, grade, model, brand and name of manufacturer is available from The Acromark Company. The article states that the marking of products was introduced as early as 1363, by the Goldsmiths' Company, in London. It recorded the date of manufacture, the maker's name and attested to the purity of the metal The article goes on to describe the history of product marking, and illustrates various markings and marking equipment.

(Also reviewed in July)

Circle 370 on Reader Service Card

Movable Walls:

Low cost movable walls you can erect yourself are described in a 27 page catalog by Unistrut Products Company. Many framing patterns, together with the simple steps of installation, are contained in the literature.

(Also reviewed in June)

Circle 371 on Reader Service Card

High Speed Feeding:

Up to 200,000 items per hour can be fed, oriented or counted with the Hoppermatic, a product of U. S. Engineering Co. It is claimed to be the only parts feeder offering standardization of design, complete from universal pick-up of pockets through orientation and controlled release. The same machine handles an endless variety of items. The entire story is told in a four-page folder available from U. S. Engineering Co.

(Also reviewed in July)

Circle 372 on Reader Service Card

DC Battery Charger for Industry:

The Christie Stavolt automatic battery charger is the subject of Bulletin BC-A-57-1, published recently by The Christie Electric Corp. This unit is a precision charger for industrial and military use. According to the manufacturer, it requires neither experienced help nor advance preparation.

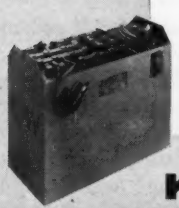
(Also reviewed in June)

Circle 373 on Reader Service Card

Keep Going All Day with K-W Complete Power Unit System

- Recharge Battery Anywhere in Plant
- Needs No Special Charging Equipment
- No Moving Parts
- Lower Cost and Down Time for Battery Maintenance
- Longer Battery Life
- Use Any 110-120 Volt, 50/60 Cycle AC Circuit

Moto-Truc Model PAL-R
Pallet Truck with Skid Adaptor



With the K-W complete power unit system on your trucks you can schedule battery recharging anywhere in your plant at any time. Now K-W puts truck down time for battery recharging on a controlled end-of-shift or staggered operational basis to fit your needs. K-W increases handling efficiency by giving you the flexibility of decentralized truck charging. This flexibility adds valuable storage space and saves operator time—no return to central charging location. K-W insures full truck power and performance when you need it, keeps trucks going all day.

K-W users report major savings in battery and charger costs. No special plant high voltage charger installation is necessary. Each unit plugs into any 110-120 volt, 50/60 cycle AC circuit. Battery recharging is completely automatic and self-adjusting—no attendant needed. Flushing requirements are less because lower battery temperature means less electrolyte loss. There is less gassing due to lower finishing rate. Lower maintenance cost with these K-W features.

Side and top charger mountings available for all truck requirements. The K-W selenium charger is lightweight with no moving parts. Units are encased in steel and built for long trouble-free operation under severe conditions. WRITE FOR COMPLETE FREE INFORMATION ON HOW THE K-W COMPLETE POWER UNIT SYSTEM CAN CUT COSTS IN YOUR PLANT.

Specify the K-W Complete Power Unit on Your Next Truck
K-W Batteries for All Industrial Applications.

K-W BATTERY COMPANY

SKOKIE, ILLINOIS • IRVINGTON, NEW JERSEY

SALES and SERVICE
in PRINCIPAL CITIES

Circle No. 91 on Reader Service Card for more information

SALES FIELD . . .
(*Continued from page* 26)

Construction is under way on a new, modern sales branch and warehouse for **United States Rubber Company** in Dallas, Texas. The new building will completed in the early Fall, and will replace present outgrown offices and warehouse at two locations. It will be located in the Brook Hollow Industrial District. More than 125 U. S. Rubber sales, administrative and service personnel will be employed in the new building.

Hunt Truck Sales and Service Co., with offices and shop facilities in Tampa and Miami, has been named exclusive franchise representative for Yale industrial lift trucks in central and southern Florida, according to an announcement by **Yale Material Handling Division, The Yale & Towne Manufacturing Company.** Both locations contain complete inventories of Yale factory approved eplacement parts and fully equipped service shops. The material handling activities of the company will be headed by **Thomas Hartland,** a veteran of more than 20 years experience in the industrial lift truck sales field and service field.

Wallace M. Schleicher has been named to the post of manager, motive power and railroad sales, for **C & D Batteries, Inc.** The appointment was announced by Henry E. Jensen, C & D's vice president. Schleicher has spent almost thirty years in technical sales work in the industrial storage battery field.

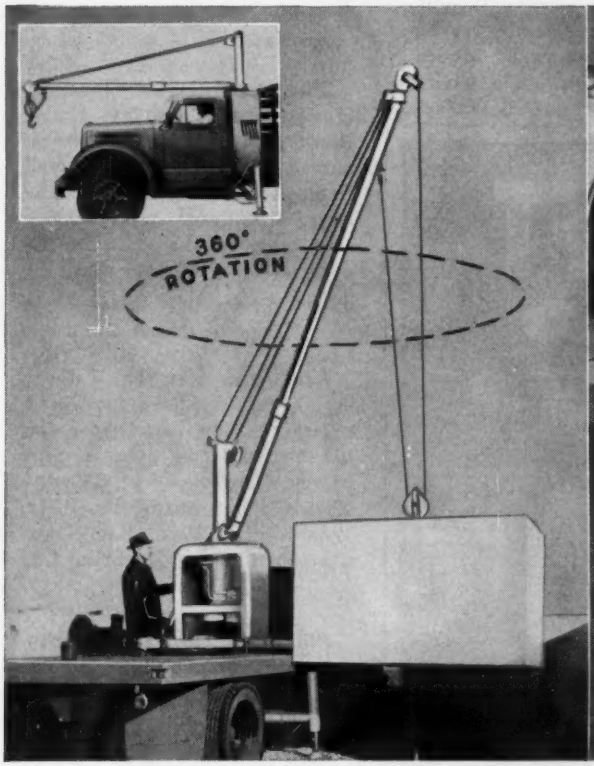
Gerotor May Corporation has announced the appointment of **Gordon L. Knudson** as district representative covering the midwestern territory. Knudson will have his headquarters in Chicago.

The appointment of **Donald R. Wickman** as manager of motive power sales has been announced by the **Industrial Division of Gould-National Batteries, Inc.** Wickman has served as a specifications engineer in Pittsburgh, and in his present position will direct sales activities in the application of batteries to industrial trucks, mining and construction equipment from Gould's headquarters in Trenton.

Dean P. Stout has been appointed general manager of sales for the **Gair Containerboard and Kraft Paper Division of Continental Can Company.** Stout has been manager of sales for bags and paper in the division. He joined the Southern Advance Bag and Paper Company in 1952 prior to

LOOK TO DAYBROOK

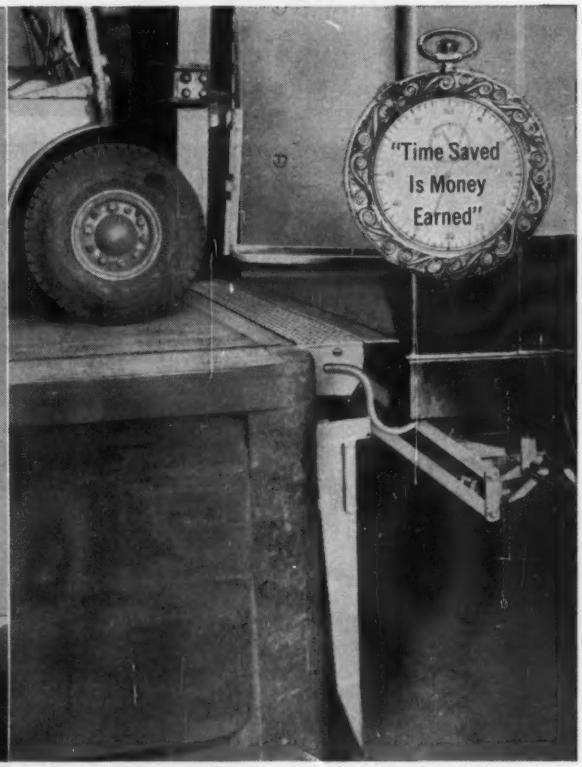
. . . for New Cost-Cutting Methods of Materials Handling by Truck!



DAYBROOK-WOODSIDE POWER LOADER

Now—truck power is used for loading-unloading operations—doubling the utility value of delivery and transport trucks—thereby CUTTING COSTS.

● **DAYBROOK-Woodside POWER LOADER (Truck Crane)**—Mounts in 20″ space behind cab of truck, operates with full 360° rotation for loading, unloading and placement of loads up to 4000 pounds. New Remote Control System for greater versatility available as an extra.



DAYBROOK *SPEEDLIFT* POWER GATE® (SERIES DA)

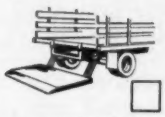
● **DAYBROOK POWER GATE**—Series DA features both ground level and dock loading and unloading operation. Other models available in 600, 1100, 2000, 3000, and 4000 pound capacities.

Both the Power Loader and Power Gates are 100% hydraulically operated and controlled.

Experts in modern transportation recognize the value of the Power Loader and Power Gate methods of materials handling. Ask your Daybrook distributor for a demonstration!

SEND DAYBROOK LITERATURE CHECKED BELOW: 49


POWER LOADER ☐


POWER GATE ☐


DUMP BODY—HOIST ☐

Sign below, attach coupon to letterhead and mail in envelope.

Name

DAYBROOK Speedlift® TRUCK EQUIPMENT

LAYCO

DAYBROOK HYDRAULIC DIVISION
L. A. YOUNG SPRING & WIRE CORPORATION
BOWLING GREEN, OHIO

Continued

its acquisition by Gair. He has been in the bag and paper industry for 16 years.

Bathey Manufacturing Company has appointed **Glen R. Steele** as sales manager. In his position, Steele will be in charge of all direct and dealer sales for both materials handling and surveying equipment. He also will be responsible for product design and development for catalog or standard items.

Three appointments involving personnel at Portland, Oregon, and Danville, Illinois, have been announced by **Hyster Company. Robert F. Moody** has been appointed domestic sales manager and will have charge of all industrial truck sales activities in the U. S., Hawaii, Alaska and Canada. **Raymond L. Howerton** becomes sales promotion manager. **Ray M. Ronald** was appointed domestic sales manager of Hyster's tractor equipment division.

The Associated Handling Equipment Company, Grand Rapids, Michigan, has been named a distributor for **Powell Pressed Steel Company.** The new distributor will service customers in the area on the complete line of Powell products.

Alderson Supply, Tulsa, Oklahoma, has been appointed a construction distributor for plaster-mortar mixers and power wheelbarrows by **Kwik-Mix Co.** Located in Port Washington, Wis., Kwik-Mix is a subsidiary of **Koehring Co.**

Phillip A. Kessler has been appointed district manager of the Wisconsin sales office of **Palmer-Shile Company.** Kessler will be in charge of sales and engineering for Palmer-Shile in the Wisconsin area. He is factory trained and has a background of 12 years in the material handling field.

William E. Hughes has been named to the staff of the Washington division of **Container Laboratories, Incorporated,** according to an announcement by Allyn C. Beardsell, president. In this position he will be responsible for a variety of assignments connected with the division's services preformed for governmental agencies and for private firms dealing with the government.

A new regional sales manager for Chicago and St. Louis districts and new managers for Washington and Pittsburgh have been appointed by the

Edison Storage Battery Division of Thomas A. Edison Industries, McGraw-Edison Company. James A. Mustard, Jr., has been named to the newly created post of regional sales manager and will have his office in Chicago. He will supervise the Chicago and St. Louis district offices. New manager in Washington is **Charles A. Taylor,** former manager of the Pittsburgh office. Succeeding Taylor as manager of the Pittsburgh district office is **William F. Hunt.**

The Insley Manufacturing Corporation has appointed **T. S. Woodall** as district sales representative for the states of North Carolina, South Carolina, Georgia, Florida, Alabama, and eastern Tennessee. His headquarters location will be at Atlanta, Georgia. Woodall has been active in the construction industry for the past eleven years.

J. M. Devers, recently retired director of marketing for the **Packing Equipment Division of Food Machinery and Chemical Corporation,** has opened own organization, the **Hawaiian Material Handling Equipment Company,** in Honolulu. The new company will handle the complete Food Machinery material handling product line.

Three new distributors to handle sales and service have been appointed by **Koehring Co. McDonald Equipment Co.,** Little Rock, Arkansas will cover Arkansas except the counties of: Cicot, Clay, Craighead, Crittenden, Cross, Desha, Greene, Lawrence, Lee, Mississippi Phillips Poinsett Randolph and St. Francis. **Central Ohio Tractor Co.,** Columbus, Ohio, will cover the Columbus and central Ohio area. **Eastern Industrial Division of Minneapolis-Moline Co.,** Cleveland, Ohio, will cover the Cleveland territory and northern Ohio.

American Sisalkraft Corporation has appointed **Joseph W. Smith** assistant sales manager for their Western Division. Smith has been manager of the South Atlantic district for sixteen years. He will devote a large amount of his time in the development of the company's industrial markets.

Lewis R. Darlin has been named central regional manager, **Dexion Division, Acme Steel Company,** Chicago.

Dixon Supply Company has been appointed a distributor for **Boston Hose & Rubber Company,** according to announcement by Randolph H. Jackson, director of sales for Boston. Dixon Supply Company is located at 425 South 20th St., Birmingham 3, Alabama.

The Fairbanks Company has appointed **Leland L. Bogle** sales representative in the territory of Tennessee, Alabama and Northern Mississippi. Bogle will sell the complete line of Fairbanks valves, trucks, and casters.

Alan Moyer of **Reynolds Metals Company** has been named Milwaukee divisional sales manager, industrial sales. Moyer joined Reynolds in 1945 in Boston as industrial sales representative, after attending the Massachusetts Institute of Technology. In 1951 he was transferred to Louisville and promoted to the post of assistant distributor coordinator.

The San Diego Branch of **Irving G King & Company** has moved into new quarters at 1646 India Street, San Diego 1, California. According to **President Thomas A. Fitch** the growth of business in San Diego has necessitated this move. **Dave Gatch** is in charge of the San Diego branch and manages the sales and service of all products.

Frank Coffin, sales executive in the plastics division of **Kennedy Car Liner & Bag Co.,** has been appointed assistant general manager of the firm's Canadian plant at Woodstock, Ontario. The appointment has been announced by **H. M. Hanson,** president. Coffin's new post involves management of sales and distribution of packaging products throughout Canada.

American Sisalkraft Corporation has named **J. R. Finn** Chicago regional manager of industrial sales. Finn will handle the merchandising and sales operations of the firm's "Fibreen Line" of packaging papers.

FLOW Reports on Handling 'Round the Country

FOR HARD-TO-HANDLE PRODUCTS

Paris, France—Typical of awkward, difficult-to-handle products now being handled by money-

saving mechanical methods in the United States and abroad is this mammoth rubber tire. A tire dealer solved this handling problem by strong-arming the tire with a "load grab" clamp on a lift truck. The revolving feature of this hydraulic clamp attachment allows removal of the tire from storage in a horizontal position, then placing it in a vertical mounting position.

Circle 241 on Reader Service Card

WORKING FOR PEANUTS

Andalusia, Ala.—Four to five thousand tons of peanuts are moved annually by a peanut processing company, with the aid of an economical bucket-equipped

tractor. Burning less than three quarts of gasoline an hour, the unit with its specially modified bucket carries peanuts in bulk to the sheller, a handling job previously done by three men. The capacity and maneuverability of the unit is indicated by its performance record. Moving 15 bush-

FLOW REPORTS

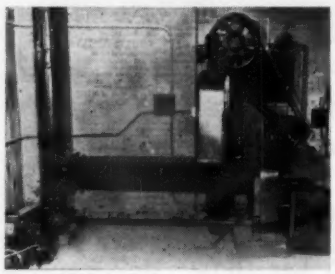
Continued

els of peanuts each load, it travels 25 feet each trip to supply a 12 ton-per-hour sheller.

Circle 242 on Reader Service Card

SAVES MONEY FOR BAKERY

New York, N. Y.—A national producer of matzos replaced an old system for handling bulk, free-



flowing materials with a screw elevator system. The new system consists of two 9-inch diameter screw elevators and supplementary screw conveyors and accessories. The lower elevator receives meal on the second floor and lifts it 23 feet to the fourth floor. There a screw conveyor feeds it to the second elevator, which lifts it almost 27 feet to a second screw conveyor, from which it is deposited into the main storage bin.

Circle 243 on Reader Service Card

UNLOADS SAND QUICKLY, SAFELY

Portland, Ore.—The time-consuming task of unloading white sand from rail cars is now accomplished much faster and more safely by the Electric Steel Foundry Company. The firm has fabricated two special hoppers which are loaded by a gasoline fork truck with scoop attachment working inside the car. The four-ton hoppers are self-dumping and portable and replace the old one-ton buckets which had to be hand-dumped.

Previously it took four men three hours to unload a car of sand. Now four men are used for about one-half hour, or until the

doorway of the car is clear of sand. From then on it requires only two men to finish unloading the car in one more hour. This is accomplished by placing one hopper on each side of the car; while one is moved to the storage bin, the other is loaded with a special scoop lift attachment on the fork truck.

The new hoppers hold four times more sand than the old hopper. This means only 12 crane trips instead of 48, releasing the crane for other important work in the scrap yard.

The self-dumping boxes are pointed out as a real safety feature. Using the old bucket, a man had to remain on top of the sand bins and hand-dump the hopper. Now the crane operator lowers the hopper into the bin and a cleverly designed lever mechanism is tripped, opening a door on the bottom of the hopper which allows the sand to flow into the bin.

Circle 244 on Reader Service Card

Truck Handbook For Fall Release

The culmination of more than two years of work, the "Handbook of Powered Industrial Trucks", will be published within a few months. This is the word from the Industrial Truck Association.

The 94-page manual is divided into five sections covering selection of equipment, material handling procedures, and truck operation. There is a 20-page section devoted to engineering data. ITA committee members who worked on the project say this is the most complete compilation of technical information on industrial trucks ever published. Price is $5.00 per copy.

Although release is scheduled for late September or early October, advance orders may now be placed with the Industrial Truck Association, Ninth and F Sts., Washington 4, D. C.

CUSTOMER-BENEFIT . . .

(*Continued from page* 110)

shipment were studied, including wrapping them in polyethylene bags and sealing them with plastic caps. Most proved too fragile to provide needed protection under the conditions which the shipments experienced. Some were prohibitively costly.

Corrugated Cover Solves Problem

Finally a corrugated end bell cover, with wax surface for waterproofing, was decided upon because it met all necessary requirements. Supply is no problem because the covers can be furnished, prefabricated to size, by a local corrugated box manufacturer. The method provides a double-locking waterproof seal.

The packaging sequence is simple and quick:

1. A double-locking waterproof seal is provided by inserting a corrugated disc into the end bell.

on top of a waterproof barrier.
2. A cover, with eight flaps around its outer edge, is placed over the bell, inner corrugated disc and waterproof barrier. Its flaps are folded back over the protruding edges of the barrier to provide additional protection against stones and vandalism.
3. The entire covering is sealed by means of a one-half inch band of steel strapping which is easily applied by means of a portable hand-operated steel strap stretcher. For added convenience, the strapping is contained on a portable dispensing reel.
4. Units are mounted on skids and then fastened to flat cars.

No other preparation is required to insure safe delivery of the buses to customers.

Improved Packaging Increases Product Value

The improved packaging method enhances the over-all value of the product to G.E.'s customers through elimination of additional labor for uncrating, easier identification and handling of units and protection from unfavorable weather conditions. The protection is of vital importance not only in transit, but during erection time. The covers remain in place until final stages of installation. They are finally removed when individual connections must be made between bus sections. Other than the tie-downs used to hold buses on flat cars, the covers are the only preparation for shipment. They answer all protection needs, all the way from the factory to final installation.

Pifferton, just where the devil did you order this new belt?

New EQUIPMENT SECTION

Template File Saves Storage Space

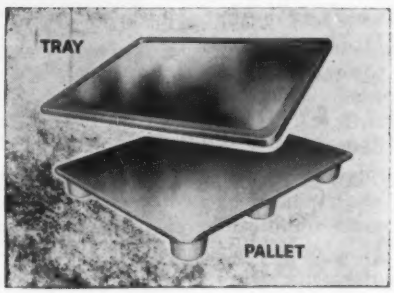
A template file which is said to save space and labor costs has been introduced by Deluxe Metal Furniture Company. The file, called "Templa-File", has a storage capacity of almost 3,000 square feet and occupies less than 25 feet of floor space. It has a self-contained reference desk and card file, which according to the manufacturer makes record keeping of templates simple and fool-proof.

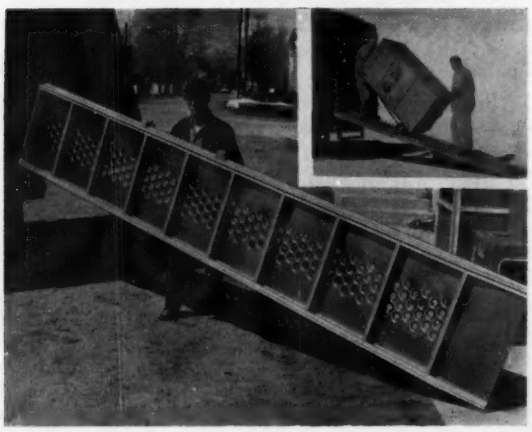
Circle 174 on Reader Service Card

Plastic Pallets

The Paltier Corporation has developed a complete line of plastic pallets, skids, shipping trays, assembly line trays and flexible stacking pallets. According to the manufacturer, they eliminate practically all maintenance. No nails, screws, or bolts are used in the construction. They are designed to meet the most rugged operating requirements. All units are light in weight—twenty-three pounds for 40″ x 48″ pallet. All units of a given type and size are uniform in weight, permitting simplified load inventory. They are easily cleaned or sterilized and will not warp, crack or sag.

Circle 175 on Reader Service Card





Portable Ramp Is Designed for One-Man Service

Magline Inc. has introduced a portable ramp designed for one-man service on delivery trucks and vans. Made of magnesium and aluminum alloys, it can be removed, set-up, used and stored by one worker at the delivery point. It stows under the body frame while the truck is enroute. A perforated, self-cleaning walkway along the center of the ramp provides secure footing. Outer edges are smooth surfaced for easy hand truck wheeling. Guard rails prevent truck run-off. Capacity of the ramp is 1000 pounds. It is 14 feet long and will service truck beds from 34 to 54 inches high. Other models are also available.

Circle 176 on Reader Service Card

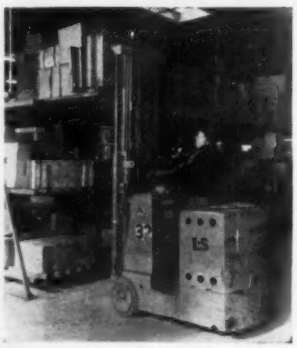
NEW EQUIPMENT SECTION

Automation in Tape Sealing

Tape-O-Matic #3 tape dispenser has been introduced by Better Packages, Inc. This power tape dispenser features electronically controlled feeding, measuring and moistening. The unit takes all standard gummed tapes from 2½ to 3 inches wide, reinforced or kraft. Tape length is controlled through the use of preset key selectors. Warm-water moistening is uniform from end to end and edge to edge. Tape-O-Matic installations can be custom designed to suit the individual taping operations. Shippers have a choice of a number of different controls for installation on shipping tables or in conveyor lines.

Circle 177 on Reader Service Card

Palletless Handling Possible with New Attachment



A new attachment, consisting of multiple forks, side-shifter and push-off device, has been developed by Lewis-Shepard Products, Inc. The attachment, suitable for use with Lewis-Shepard Model "E" Trucks, is especially effective where complete selectivity of each unit is desired. The use of this attachment requires special all steel storage racks, also produced by Lewis-Shepard Products, Inc. These racks are of cantilever-type construction. The multiple forks on the attachment easily slip between the individual length-wise beams of the racks. The load is raised and carried on the multiple forks. At the unloading, point the push-off devices pushes the load off the forks. The side shifter facilitates depositing goods in hard-to-reach corners.

Circle 178 on Reader Service Card

Conveys Around Curves

A new power-driven curve conveyor has been introduced by the Power-Curve Conveyor Co. Bags, cartons, bundles or packages are conveyed around turns of any length under power. Standard widths are 18, 24, and 32 inches, with one belt roller for each 10 degrees of curvature. These are shipped completely assembled, and require only seven inches of headroom. The Power-Curve conveyor runs either way, and reverses instantly. According to the manufacturer, vertical conveying can be arranged, as well as any angle up or down.

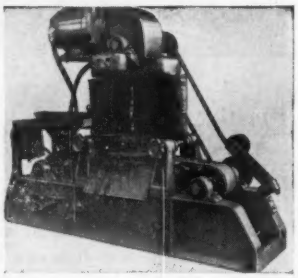
Circle 179 on Reader Service Card

Aids in Order-Picking

Mercury Manufacturing Company has developed a new 1500 pound capacity hand truck specificaly designed for order-picking and other manual handling operations. The unit can be equipped with assemblies for under-floor or overhead conveyor line operation. Platform of the A-308 hand truck is 36 inches wide by 60 inches long. It stands 14 inches high. The deck is flush hardwood with countersunk matel holddown strips. The unit has two stake pockets on 23 inch centers on the caster end to accept a pipe rack, with one cross member, for pushing.

Circle 180 on Reader Service Card

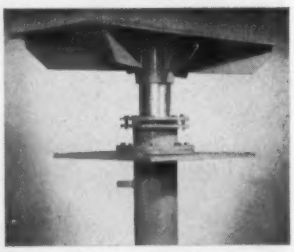
Magnetic Separator for Selective Mineral Analysis



A magnetic separator, which provides a positive method of determining the feasibility of magnetic concentration of minerals, has been announced by Stearns Magnetic Products. This unit, called the Stearns Ring-Type "D" Separator, operates by passing the material through the high-intensity magnetic field produced by the rotating magnetic ring. The magnetics contained in the feed material are lifted from the mixture as it passes beneath the take-off ring.

Circle 181 on Reader Service Card

Ideal for Plants Without Loading Docks



Boxes or skids can be raised or lowered to truck heights of easy transfer with a platform lift, Hydro-Lift, developed by Hydro-Lift Company. Installation is easy as it is designed for a shallow pit. It features all-steel construction with bronze bearings in all moving parts. Pumping unit can be furnished with single or three phase motor. A controller switch is provided which

will raise, lower or hold the load at any position. Platforms can be either circular or square up to 12′ x 16′ with load capacities ranging from 1000 to 20,000 pounds. Strokes range from 36″ up.

Circle 182 on Reader Service Card

Carries 12 Cubic Feet of Concrete

A concrete power buggy, developed by Whiteman Manufacturing Company, features a heavy solid-casting rear frame that adds strength and ruggedness, and new type wheel-clutches. Other design improvements are ball bearings in the steering column for easy steering and providing adjustment for wear, hand-operated parking brake, sturdy seat bracket and large, strong steel guards for added protection to the operator. It carries 12 cubic feet of concrete. Travels up to 16 mph, climbs 25% grades, turns in its own radius.

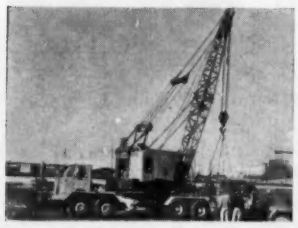
Circle 183 on Reader Service Card

Features A Kick Release Bar

The Bassick F410 Position Lock for castered trucks, scaffolds, and other mobile equipment now incorporates a kick release bar as standard equipment. According to the Bassick Company, an easy downward pressure on the pedal sets the "shoe" securely in contact with the floor and downward pressure on the kick bar releases the lock. The manufacturer states that this downward pressure (to release the lock) is more conveniently and easily applied than an upward pressure on the pedal as required with the previous model. Locking pressure can be controlled to insure secure holding even on uneven floors. It is designed for use on mobile benches, tool stands, conveyors, work stands, scales, engine stands, floor trucks and scaffolds.

Circle 184 on Reader Service Card

Crane Lifts Its Own Weight



A 45 ton capacity truck crane, weighing only 90,080 pounds, is being manufactured by Koehring Company. Designated as the Koehring 445, the truck crane can use up to a 120 foot boom. Straight boom jibs, 15, 20, 25, and 30 feet long with

cable are available for special high lift crane service. Safety boom limit stops and power boom lowering are standard equipment. Powered by an engine that delivers 214 HP at 2400 RPM, the truck has 8 speeds forward—4 in main and 2 in auxiliary. Top speed is 31.8 miles per hour. Truck chasis, mounted on a 220 inch wheel base, is 10′ 1″ wide and 30′ 2½″ long. Two outrigger housings are furnished for extra stability. For critical moving conditions, the weight can be reduced to 67,100 pounds by removal of boom, counterweight and outrigger beams.

Circle 185 on Reader Service Card

Belt Installed by One Man

A fast way of installing conveyor belts has been developed by Flexible Steel Lacing Company. According to the manufacturer, it obsoletes former methods because it does the job much quicker than was heretofore possible and with less effort, and reduces belt down-time to a minimum. Each end of the belt is clamped between bars, one set of which is equipped with jacks and tensioning rods. The tensioning rods are slipped over studs on the opposite bar clamp. The ends of the belts are drawn together by the jacks. When fasteners mesh properly, pin is inserted through loops of lacing or fasteners. Tension on jacks is released, clamps are removed from belt and belt is ready to operate.

Circle 186 on Reader Service Card

Features Shorter Truck Length

The use of a new all gear power unit has enabled the Automatic Transportation Company, in accordance with its modernization program of producing shorter models in the operator-led industrial truck line, to introduce two models, WT-2A and 4A. The trucks measure only 35½ inches in length, a reduction of 3¼ inches over the retired models of the same capacity. The WT-2A has a rated draw bar pull of 200 pounds with an ultimate of 700 pounds, while its companion, the WT-4A has a normal draw bar pull of 400 pounds with an ultimate of 700 pounds. This doubles the old normal rating.

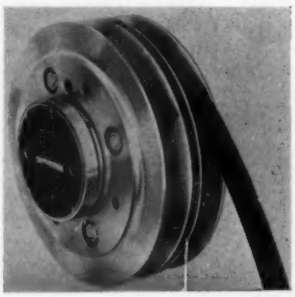
Circle 187 on Reader Service Card

Designed to Solve Tote Box Loading Problems

A model featuring a specially-designed delivery extension has been added to the line of Homer "Space-Saver" magnetic conveyors. Manufactured by The Homer Manufacturing Company, Inc., incorporates an adjustable feature permitting the setting of the angle of incline so that the receiving end of the conveyor fits under the discharge chute of all standard presses. When the angle of incline is reduced, conveyor reach is extended so that the extension section may be centered over a tote box. According to the manufacturer, when the conveyor is operating at its lowest incline, standard tote boxes will clear the delivery extension without moving the conveyor.

Circle 188 on Reader Service Card

Adjustable-Speed Drives



Two "C" Groove Adjustable-Speed Drives have been added to its present line of standard adjustable-speed drives by The American Pulley Company. According to the manufacturer, these drives have been made possible by the greater horsepower-transmitting capacity of American SuperService Wedgebells. They permit stepless speed adjustments up to 26%. The three new 2 "C" sheave pitch diameters are 8.5—10.7, 9.5—11.7, and 10.5—12.7 P.D. A split tapered bushing is available for the three diameters.

Circle 189 on Reader Service Card

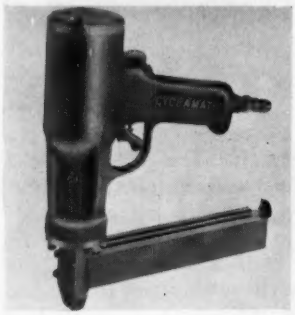
Completely Hydraulic

Truck Crane, Inc., a subsidiary of Anthony Company, has introduced a new truck mounted crane. The "Truck-Crane" requires only 18 inches of space behind the truck or tractor cab, which leaves the entire body free for payload area. Loading, hauling and unloading are accomplished with one work unit because the crane is built into the truck. Power for the Truck-Crane is completely hydraulic in all phases of operation. According to the manufacturer, both horizontal and ele-

vating type booms are available and offer speed, versatility and increased capacity to loading and unloading opertions. Capacity is 5000 pounds and the boom swing is 280 degrees.

Circle 190 on Reader Service Card

Air-Operated Nailer Is Easily Portable



The Calwire Cyclamatic nailer developed by California Wire Products Co., Inc. is easily portable—weighing only about five pounds—yet can be fired at the rate of 350 cycles per minute. The pneumatic tool has only two moving parts. Its construction eliminates the need for springs, and the piston is automatically returned by air without loss of pressure to the atmosphere. The Cyclamatic drives nails up to 6-penny (2-inch) size with a single stroke, even in hardwood. It can also be used with industrial staples up to 14-gauge (1⅝-inch).

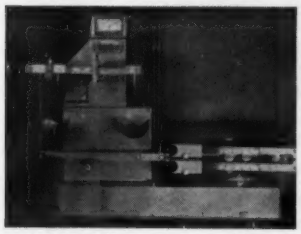
Circle 191 on Reader Service Card

Cam-Action Carrier

A special automatic cam-action carrier for use with their overhead conveying system has been developed by Chainveyor Corporation. It is capable of holding a wide variety of flat materials, such as paper, cloth and light-gauge steel sheets. Instant automatic or manual release is obtained by applying a slight pressure on the extension of the cam arm. A special grip which will not mar surfaces or finishes is provided. Up to 30 pounds per single load can be gripped and carried.

Circle 192 on Reader Service Card

Scale Designed for Industrial Use



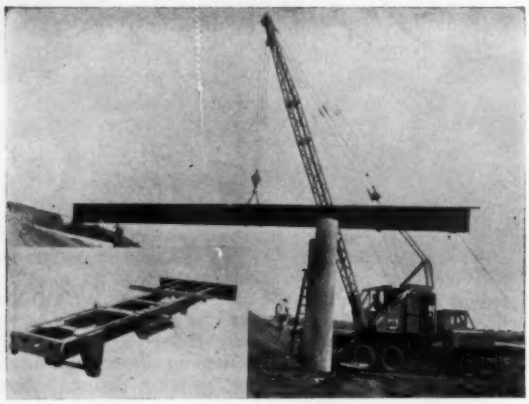
A double ratio counting scale which it claims to be the fastest mechanical counting scale on the market has been introduced by Pennsylvania Scale Company. A spokesman states that the fast weight indication is achieved through the use of an

entirely new concept in indicator linkage and design. It is intended for industrial use in the precision counting of quantities of parts that are uniform in weight. The indicator system consists of a spring-loaded, tape driven indicator that is direct-connected to the scale lever.

Circle 193 on Reader Service Card

Increased Capacity to 8 Tons

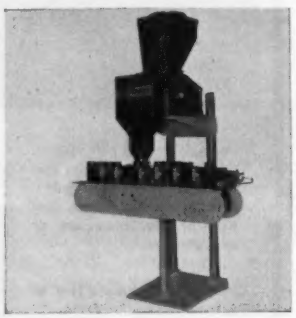
Ability to handle bigger lifts at increased working radii with or without outriggers is the main advantage of an 8-ton lifting capacity crane, carrier-mounted



Model T-35, manufactured by Schield Bantam Company. According to a company spokesman, the increased capacity is the result of extensive testing and modification of the former Bantam 7-ton model. When mounted on the Bantam heavy-duty "300" crane carrier, it will handle a full 8-ton load working at ten-foot radius, over-end with outriggers. Schield Bantam also announces a box-beam frame for all heavy-duty Bantam Model "300" crane carriers. The frame offers strength, rigidity and maximum stability for handling big loads. It is stress relieved to prevent warping and possible twisting.

Circle 194 on Reader Service Card

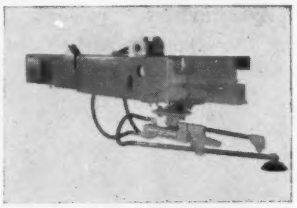
Net Weight Filler Operates at High Speeds



A Hi-Speed net weight filler has been added to the Glengarry Processes, Inc. line of weighing and packaging equipment. It is capable of handling a wide variety of products such as foods, chemicals, plastics, drugs, powdered metals and abrasives. Up to 40 weighings per minute can be accomplished, in weights ranging from 1 ounce to 5 pounds. Many special attachments are available, such as hoppers, buckets, shrouds, discharge spouts, counters and cycling devices. All controls are mounted in a remote control box.

Circle 195 on Reader Service Card

Automatic Press Unloader Unit



Automatic handling of sheet metal parts in stamping presses as well as parts in plastic molding machines can be accomplished with a press unloader unit developed and built by Press Automation Systems, Inc. The gripping mechanism, which is called the Vac-Hand, can be mounted

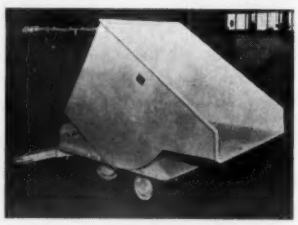
Circle 196 on Reader Service Card

Hydraulic Hoist with Dumping Angle of 45°

A hydraulic hoist, suitable for conversion installation on ¾ and 1 ton trucks, has been developed by Hercules Steel Products Company. It is designed for use under light duty dump bodies up to 8 feet in length, platform bodies up to 10 feet long, or 6½ to 9½ feet pick-up bodies. Designated as Model 440, the hoist has a dumping angle of 45° and an 8 9/16 inch mounting height. Oil reservoir, manifold, remote control valve and PTO-driven pump are unit-mounted on the hoist subframe. Hoist operation is completely controlled from the truck cab. Slide-type control valve and high output dual shaft pump assure precise hoist control and rapid lifting.

Circle 197 on Reader Service Card

Features Safety Lock



An automatic safety lock on a 1½ cubic yard Phil-Dump, manufactured by Salem-Brosius, Inc., permits easy and instantaneous dumping of the load but can not come loose to spill the hopper's contents. The unit can be towed by a lift truck or plant mule. Its trailer steers at one end and will not tip regardless of load distribution in the hopper box. The hopper is 45 inches wide, 55 inches high and 64 inches long. It has bearing-mounted, 12 by 5 solid rubber tire wheels on 1¾ inch axles. Flush-type Alemite fittings facilitate wheel lubrication on the trailer. Ruggedness and maneuverability in handling steel castings or other concentrated loads are features.

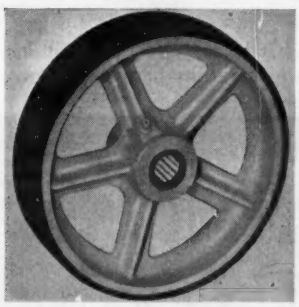
Circle 198 on Reader Service Card

Features Extra Maneuverability

A new series of light-duty fork trucks has been introduced by Baker-Raulang Company. These trucks, designated as the FTA series, offer shorter turning radius and extra maneuverability. They are designed for normal and light-duty applications. The FTA-50, with 5000 pounds capacity, and the FTA-70 with 7000 pounds capacity, are now available. Other capacities will be added. Specifications of the FTA-50 include 77-¾ inch turning radius, 68-¾ inch minimum intersecting aisle, 41 inch overall width, and overall length without forks of 79-⅝ inches. The FTA-70 has a turning radius of 86-¾ inches. Minimum intersecting aisle is 74-¾ inches. Overall length without fork is 89-¾ inches, and overall width is 44-½ inches.

Circle 199 on Reader Service Card

Features Lower Pushing Effort



A high-density rubber-tired wheel has been developed by Jakes Foundry Company. The wheel, called the Pushease, is said to reduce pushing effort as much as 20% and increase load capacity. It retains its round or concentric shape in operation and tends to give a line contact with the floor rather than a flattened area. It is resilient, floor-protective, quiet in operation, and longlived.

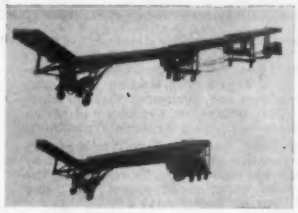
Circle 200 on Reader Service Card

Features Folding Shelves

An all steel stock truck featuring folding shelves for easy loading and unloading has been developed by Super Speed Printing Machinery, Inc. It has a capacity of 1500 pounds and moves on two fixed and two swivel casters. Shelves can be designed with compartments as requested. Each shelf, as it is emptied, can be folded up out of the way to give complete free access to the next shelf below. Height of the truck is 48 inches and the shelf dimensions are 24 x 30 inches. Maximum shelves available for the standard truck are four folding shelves and the bottom. Shelves may be easily removed by lifting them out when not in use.

Circle 201 on Reader Service Card

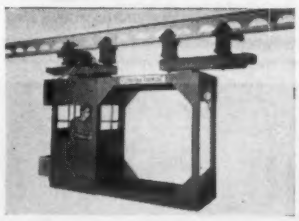
Handles Bag-Packed Materials



Sugar, flour, tobacco, mail and similar commodities not conveyed by gravity—can be handled with a telescopic belt conveyor developed by Wilkie Company. Manual carrying into or out of trailers and box cars is eliminated as telescopic feature permits conveyor to follow the load. Sections 10, 12, 14 or 16 feet long are available. Belt widths are 10, 20, or 30 inches. The belt on each section is driven by a separate motor and the conveyor itself is mobile and telescoped by power drive. Loads up to 300 pounds per lineal foot are handled. An elevating boom, which eliminates lifting, travels from the floor to 6′ in height, and is optional.

Circle 202 on Reader Service Card

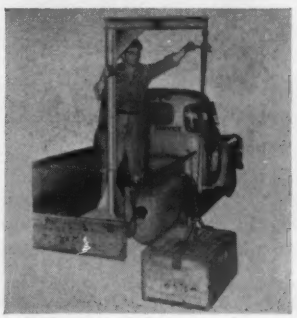
Air Conditioned Tramrail Car



A new carrier for operation on overhead tramrail systems has been introduced by the Cleveland Tramrail Division of The Cleveland Crane & Engineering Co. The carrier has a cab which is enclosed in aluminum paneling, and is provided with air conditioning to keep the operator comfortably cool while operating in high temperature areas. A safety switch prevents the carrier from being moved while the door is open. The unit has a capacity of 3100 pounds and travels at speeds up to 300 feet per minute. Carriers of other capacities and speeds can also be furnished.

Circle 203 on Reader Service Card

Eases Truck Loading Burdens



The new Bacon E-Z Lift Crane, manufactured by Bacon Crane & Hoist Corporation, features a regular I-beam boom, rotation in a complete circle, a lock bolt to restrain swing when required, and a hoist with a 10 foot lift. According to the company, the unit is designed for loading and unloading bulky objects, and can be used on a

NEW EQUIPMENT SECTION

truck for loading and unloading. It is of all steel welded construction, and weighs approximately 135 pounds.

Circle 204 on Reader Service Card

Platform Truck Has Automatic Drive

A platform truck, designed to transport loads up to 4000 pounds through confined aisles and crowded areas of terminals and warehouses, has been developed

by Hyster Company. Called the "Freighter", it has fully automatic drive, which results in smooth power

flow and excellent inching qualities for precise load positioning, according to the manufacturer. It can be operated at speeds up to 10 mph. The throttle ring is mounted within the steering wheel and the hand operated brake control bar is forward of the operator and below the steering wheel. Steering ratios of either 1 to 1 or 3 to 1 are offered. The Freighter has an overall length of 105½" with bed size of 60" long x 42" wide which has ⅝" slope to center to assist in keeping load from shifting.

Circle 205 on Reader Service Card

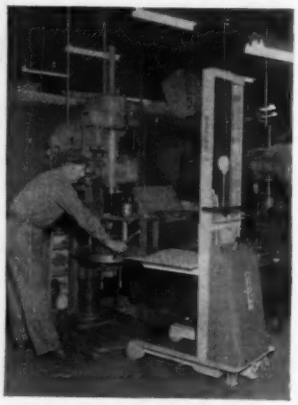
Stationary Powered Lift

A platform type, self contained, stationary "PowrLift," Model EH-131, available in capacities up to 8000 pounds, has been manufactured by the Langley Manufacturing Company. Lift is accomplished by a unitized fluid drive powered by any ordinary lighting circuit lines. Basic platform sizes are 24 x 24, 30 x 30, 42 x 42, and 48 x 48 inches. Standard platform raised heights are 60, 72, and 96 inches with one piece masts . . . 120, 144, 168, and

192 inches with spliced masts. Installation in a 4 inch deep pit will allow the platform to come flush with the floor, due to the platform down height of 3-½ inches. Accessories include . . . fail safety platform device, platform side thrust rollers, remote operated controls and momentary contact controls, removable and fixed guard and screens.

Circle 206 on Reader Service Card

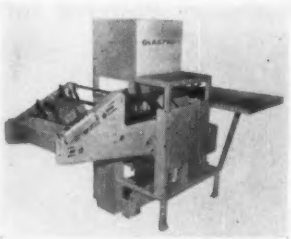
Hydraulic, Portable Elevator



Loads weighing up to 750 pounds may be raised, with no effort on the part of the operator, by the use of a new portable elevator developed by the Barrett-Cravens Company. Lift is accomplished by a hydraulic system designed to maintain low pressure under maximum load, and is controlled by a single lever for both raising and lowering the platform. Model BH-7.5 has a capacity of 750 pounds, a lift of 71 inches and an overall height of 83 inches. Full lift with full load is made in 9.5 seconds. Standard platform is 23-¾ inches long, 24 inches wide, and 6 inches above the floor in a lowered position. Power for the unit is supplied by two 6-volt outomotive type batteries, and can be recharged with the built-in compact battery charger.

Circle 207 on Reader Service Card

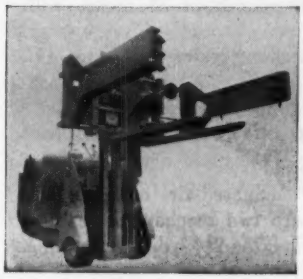
Combines Window and In-Line Packaging



Gardner Board & Carton Co. has introduced a machine that combines the features of a window and in-line glass container packaging in a single carton. Called Glaspak, it is fully automatic and wraps two to six glass units in line into a single package. Maximum size carton is 14 inches long by 17 inches wide. The Glaspak carton meets railroad shipping regulations for shipping glass. It eliminates the need for cardboard separators within the carton. Windows can be on one or both sides. The carton blank is said to use a minimum amount of paperboard. The board is shipped flat, registered and ready to use. Printing can be carried on the top and bottom.

Circle 208 on Reader Service Card

Removes Bearing Chock In Steel Rolls



A new attachment for its Skylift industrial fork lift truck has been manufactured by the Automatic Transportation Company. The attachment is designed for removal or replacement of work roll bearing chocks in steel rolling mill facilities faster and more simply. The use of this attachment enables one man to remove these chocks which weigh from 3200 to 4000 pounds. The weight of the chock is taken off the roll neck with the truck's forks and at the same time the gripping arms clamp the chock on the sides. A hydraulic pushing ram is then powered against the roll neck thereby pulling the bearing chock free from the roll.

Circle 209 on Reader Service Card

Aid to Bulk Packaging

Bulk packaging costs can be reduced through the use of a machine called the Portco-Packer, according to its manufacturer, Portco Corporation. The machine is used to compress certain materials into bulk blocks. This is said to eliminate the need for containers, simplify storage and handling, and increase the amount of material that can be stored in a given area. The unit compresses and extrudes the material into compact blocks. It compresses such material as waste paper without destroying its basic characteristics.

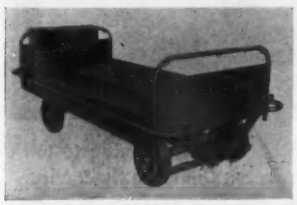
Circle 210 on Reader Service Card

Speed Reducer Offers Flexibility

General Electric's Gear Motor and Transmission Components Department has developed a shaft-mounted speed reducer for many applications where complex multiple reduction belt or chain drives have been required. According to the unit's designers, the speed reducer offers flexibility of mounting arrangement, increased safety, and lower maintenance expense. Ratio changes can be made in minutes simply by changing pulleys. A wide variety of pulley sizes makes the unit adaptable to a broad range of speeds.

Circle 211 on Reader Service Card

2000 Pound Capacity Baggage Truck



A four-wheel truck for use in carrying baggage at airport terminals as well as handling goods in other situations has been developed by Lewis-Shepard Products, Inc. Available in capacities to 2000 pounds, the truck can

either be pulled manually or by a tractor. The front-wheel brakes on the truck automatically apply when the pulling handle is raised to vertical position, while lowering the handle disengages the brake.

Circle 499 on Reader Service Card

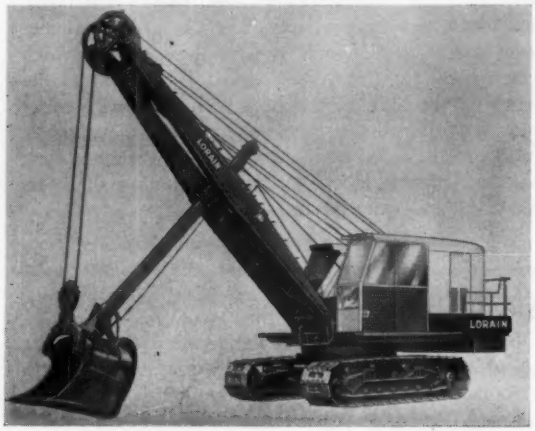
High Lifts, High Speeds

Fast travel speeds, high-speed lift and lowering, and interchangeable clamp and boom are features of a cotton compress truck manufactured by The Elwell-Parker Electric Company. According to the manufacturer, it is the first electric-powered cotton compress truck to be field proven under actual operating conditions. The electric power is said to provide for nine to ten-hour continuous operation, yet at the same time, eliminates dangerous gas fumes and fire hazards. It is designed with minimum dimensions for ease of maneuverability in close or congested areas. Capacity is 1500 pounds with boom, 2200 pounds at 24 inches with clamp.

Circle 212 on Reader Service Card

Features Cab Designed for Comfort, Convenience, Safety

Two-lever, "Joy-Stick" metered-air controls and "Shear Ball" mounting are two mechanical features incorporated in the Lorain-85A, 2½ yd. shovel-crane.

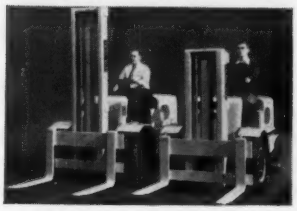


According to The Thew Shovel Company, the design of the shovel-crane is a result of extensive field research and and interviews with operators, and reflects

more than a year's engineering and styling efforts. The cab has increased glass area and includes a sliding overhead sunshade and windows, adjustable to many combinations. It is wider for more inside walk-around space. The "joy-sticks" control all turntable operations by feeding metered-air to all turntable friction clutches in any amount and at any rate, to reduce operator fatigue, improve control, response and speed. Two crawlers are available: one, 15′ 6″ x 11′ 10″ which develops up to 48 tons lifting capacity, and the other 18′ 6″ x 13′ 0″ wide, developing 60 tons lifting capacity. Both crawlers provide 2 speeds in both directions.

Circle 213 on Reader Service Card

"Multi-Lift Mast"



Low truck silhouette, designed to provide high lift and improved visibility, is the principle feature of the "Multi-Lift Mast" manufactured by the Truck-Man Division, the Knickerbocker Company. According to the manufacturer, the top of the 144 inch lift mast is below the eye level of the driver when lowered, while for the 120 inch lift, the top of the mast in lowered position is actually lower than the steering wheel of the truck. The mast is based on a simple plan which compounds the lift in a manner similar to a block and tackle. There are no latches, rachets, or telscoping cylinders. Illustrated above is a comparison between a standard height mast and the new Multi-Lift Mast.

Circle 214 on Reader Service Card

Designed With Operator In Mind

An improved cab for use with its DW20 tractors has been developed by Caterpillar Tractor Co. The new DW20 cab, available as optional equipment, is designed with the operator in mind. It provides protection and comfort when operating in extremes of weather. An insulated cab top affords protection against heat in summer and cold in winter, as well as reducing noise and vibrations. A swing-out windshield provides 3-way ventilation. Newly designed door latches guard against vibration, and at the same time offer easy access to the cab.

Circle 215 on Reader Service Card

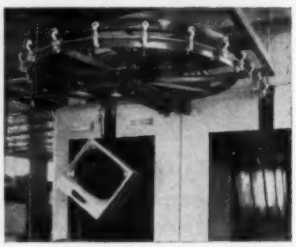
Wheel Brake for Casters

A wing-type wheel brake is available on 4″ and 5″ Bassick casters, according to a Bassick Company

spokesman. The brake enables the caster wheel to be locked securely or released with a touch of the toe. It is being used in plate or stem construction on light work stands, portable ladders, conveyor sections and other mobile equipment, and even broader use of these casters is anticipated by the manufacturer.

Circle 216 on Reader Service Card

New Drive for Overhead Conveyors



A new caterpillar drive for overhead cable trolley conveyors has been introduced by The E. W. Buschman Company. The mechanism is designed to increase the application of the firm's Bush-Lock Cable Conveyors. Applied on the straight run of the conveyor, this drive allows large-radius traction wheels having anti-friction bearings to be used. In this way the cable is guided around idler corners, and clearance is provided for large packages. As a result of using the new drive, sizable loads can be handled on close hook centers, according to the manufacturer.

Circle 217 on Reader Service Card

Bin Boxes for Small Parts Storage

A new unit for small parts storage and stock control—utilizing a variety of sizes of small bins and floor racks—has been introduced by Bathey Manufacturing Company. Bin boxes hang on rails, allowing 100 percent visibility of box interior, yet presenting a neat appearance. Clip type label holders and self-adhering labels further assist parts identification. The various bin boxes are interchangeable, as are the storage racks. Up to 360 bin boxes can hang on a single rack. Bin boxes are 6 inches front to back, 2¾ inches deep, and come in five widths from 1¾ to 11⅛ inches.

Circle 218 on Reader Service Card

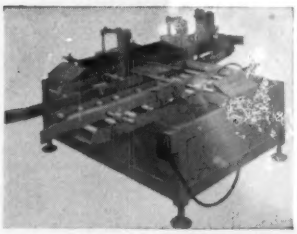
One Unit Serves Twenty Channels

A frequency meter, capable of servicing multiple

transmitter installations operating on from one to twenty channels in mobile radio communications systems, have been introduced by Allen B. Du Mont Laboratories, Inc. Previously, as many as ten dual frequency instruments were needed to perform the same task. Designated the DuMont Type 5890-A Frequency Meter, it is portable and features transistorized circuitry. It can be utilized with any transmitter operating within the complete land-mobile services' frequency bands of 25 to 470 Mc. The unit is self-contained, receiving its power from four internal batteries. It weighs only eight pounds, and measures 8 inches wide, 7 inches deep and 7 inches high.

Circle 219 on Reader Service Card

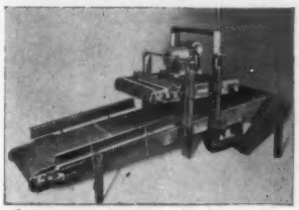
Prints Four Sides at Once



A completely automatic case imprinter which puts name, contents, and serial numbers on all four sides of a container has been announced by the J. L. Ferguson Company. Especially adapted to automatic palletizing methods requiring markings on four sides of a container for ready identification in the warehouse, it imprints without manual positioning. Compact, the imprinter prints from one to eight lines within a space range of 11 inches. Type sizes from ¼" to 1½" high are available. Flexibility of the machine makes it adaptable for all industries using corrugated shipping cases, regardless of the product being packed.

Circle 220 on Reader Service Card

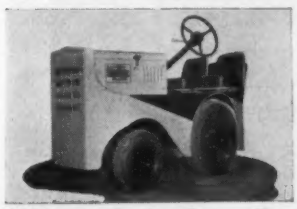
Flattening Makes Stacking Easier



The Sage bag flattener removes air and compresses bags so that stacking is easier. Both upper and lower decks are power driven. The amount of compression is adjusted by the upper deck spring tension control. Manufactured by Sage Equipment Co., Inc., the unit is available in three standard widths and lengths. Widths are 16, 20 and 24 inches. Lengths are 8, 10 and 12 feet.

Circle 221 on Reader Service Card

Features Torque Converter Drive



A hydraulic torque converter and automatic transmission are featured in the new Model 30AH Unitow Tractor manufactured by Hensel Green & Co. Engineered to provide 3000 pounds drawbar pull with towing and pushing

capacity up to 60 tons, the Unitow is designed as a general purpose material handling tractor. It is powered by a 39 hp gasoline, LP-Gas or diesel engine, and has 3 gear ranges forward with speeds up to 15 mph, with reverse speeds up to 7½ mph. Pneumatic tires are used on front and rear. The unit is 40 inches wide by 83 inches long, and 61 inches high. Its 40 inch wheelbase and 74 inch turning radius are said to provide maximum maneuverability in congested areas.

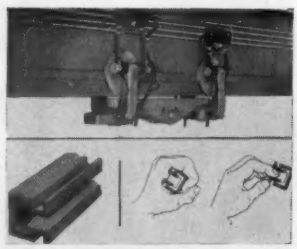
Circle 222 on Reader Service Card

Hydraulic Fork Extension Attachment

Riding-type electric tiering trucks can be equipped with a HydraFork attachment developed by Lewis-Shepard Products, Inc. To pick up a palletized load from the floor or a storage rack, the operator of the HydraFork-equipped truck simply hydraulically extends the forks into the pallet. Next, the load is lifted over the load wheels, and forks and load are retracted into the truck. When placing the load in the storage rack, the truck is positioned facing the rack. The forks are extended until the load is in proper position, the load is lowered into the rack, and the forks are retracted from the pallet. According to the manufacturer, because of this hydraulic attachment, a truck can pickup and deposit loads in aisles only as wide as the length of the truck and its forks.

Circle 223 on Reader Service Card

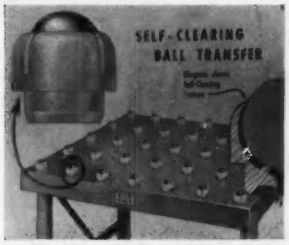
Prevents Accidental Shock



By covering its standard bus bar electrification with a special polyvinyl chloride extrusion, The American Monorail Company now furnishes electrified systems which it claims are completely safe. Under the name Kant-Shock, this shielding is said to absolutely prevent accidental contact with live bus bars. It is impossible for an adult's finger to enter the shield, the manufacturer states. A new type sliding shoe collector provides a floating contact throughout a monorail system, regardless of misalignment due to bent bars or at switches or interlocks. Live power can be fed through the system at a maximum rating of 600 volts, 100 amps.

Circle 224 on Reader Service Card

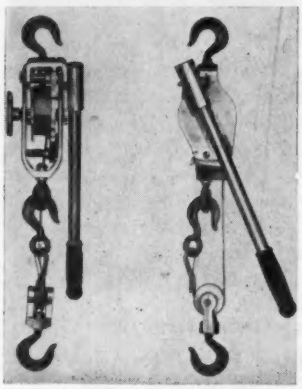
Ball Transfer Unit Is Self-Cleaning



"Metzgar-Nylo" is the trade name of the new ball transfer unit introduced by Metzgar Conveyor Company. The bottom of each retaining cup is completely open to permit continuous self-cleaning and prevent clogging. The clips are designed to support the balls on friction-reducing protrusions that require no lubrication, and the cups are slotted to permit snapping the balls in and out without tools for total cleaning—making the unit acceptable under food sanitation laws for use in food manufacture and processing equipment. The entire unit is impervious to all food acids, steam cleaning, brine, detergents, etc. Do-it-yourself units are offered, factory press-mounted in an 18 ga. formed steel triangular base.

Circle 225 on Reader Service Card

Lightweight Hoist Handles 2-Ton Load



A 2-ton capacity portable winch hoist made of high tensile strength aluminum alloy castings has been introduced by Aluminum Products, Inc. According to the manufacturer, although of unusual light weight it has an overload safety factor of approximately 100%. Equipped with 25 feet of preformed aircraft wire rope, it permits a lift or pull of 12 feet double line or 25 feet single line. Shafts and springs are of stainless steel, and the frame casting is designed to protect all working parts against damage. It is easily carried or positioned by one man.

Circle 226 on Reader Service Card

Electric Eye Controls

Miniaturized electric eye controls have been introduced by Ess Instrument Company. They are designed for eliminating timers and mechanical contacts in monitoring objects moving at random positions and varying speeds. Applications involve dual light beams: one to time the inspection and another to monitor it. The beams may be direct light cut off or

reflected, or a combination of both. The photograph shows an application for checking the presence of bottle caps.

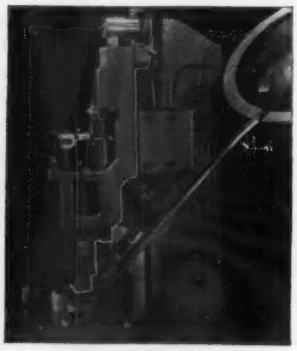
Circle 227 on Reader Service Card

Feeds Up to 200,000 Parts Per Hour

A versatile and high speed parts-feeder and counter has been developed by the U. S. Engineering Company. It will handle a large variety of items such as nuts, bolts, screws, rivets, washers, lockwashers, screw machine parts and a large assortment of other items. The action is gentle and will not damage the product in any way. Change-over from one size and shape to another can be made in about five minutes time. No change-over parts are required. Production rates up to 200,000 parts per hour can be achieved, depending on the size and shape of the parts. A longer discharge track makes it possible to release a greater number of parts simultaneously where the hopper is used for counting or packaging. Multiple tracks such as 2, 3, 4 and even 5 tracks can be accommodated.

Circle 228 on Reader Service Card

Automatically Guides Piece Parts



A wide variety of piece parts can be automatically guided from the feeder track to fixture with a new standardized parts positioner, developed by Dixon Automatic Tool, Inc. It handles parts ranging from 1/16 to 3 inch O. D. size at rates up to 7200 per hour. The "Parts Positioner," Model PR-3, may be nested on 3 inch minimum centers along an in-line transfer table or may be located at adjacent stations on a 5 inch radius dial indexing table having as many as twelve stations. Outside dimensions are 21 inches high, 3 inches wide, and 5 inches deep. Full electrical controls are included with provisions for automatic interlocking. In actual operation, the positioner serves as an efficient nessing device. If a part is missing or improperly placed, the machine stops automatically.

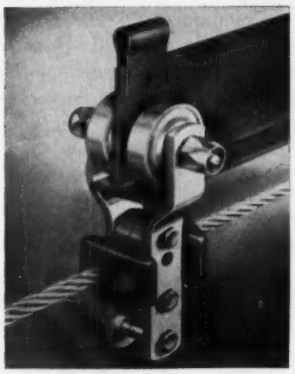
Circle 229 on Reader Service Card

Tote Boxes—Waterproof, Oil Resistant, Non-corrosive

A one-piece molded paper fibre tote box is available from the Arvey Corporation. It is available in a number of chemical impregnations, including resins. Surface coatings of plastic or paint are optional. Made with molded handles, they can be nested when empty. Intended for loads up to 100 pounds, these boxes are suited for production line parts handling and for storage purposes. They can be supplied in standard sizes or in special shapes to meet individual requirements.

Circle 230 on Reader Service Card

Trolley For Overhead Cable Conveyor



A heavy duty trolley, specially designed for use with ⅜" overhead cable conveyors, has been developed by The E. W. Buschman Company. Designated "T-10," the trolley is equipped with wheels featuring pressure lubrication, a special nut to protect the grease fitting, a completely enclosed back, and a felt hub seal. This design is particularly recommended for applications involving industrial washers, paint spray booths and other operating conditions where excessive dust, moisture or temperatures up to 150° are encountered. It comes in two models, two- and four-wheel, with capacities of 250 pounds and 375 pounds.

Circle 231 on Reader Service Card

Lifts Drums 72 Inches

A hydraulic drum lift, developed to lift drums to high levels, has been introduced by the Sterling, Fleischman Company. It is sturdily constructed of heavy-duty square steel tube for long and maintenance free life and service. The hydraulic jack is actuated by a foot operated pedal and will lift at the rate of 1½" per pedal depression. Lifting weight capacity is 750 pounds. It is mounted on 4" oil, gas and spark proof ball-bear-

NEW EQUIPMENT SECTION

ing casters for easy maneuverability and safety in hazardous areas. Special equipmnet can be added to handle 55 or 30 gal. steel drums or fibre containers, up to and including 23" dia.

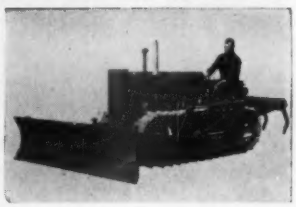
Circle 232 on Reader Service Card

Powered Ramp for Low Docks

A powered dock ramp designed by Lite-Line Metal Industries Div. of Copperloy Corp., is especially designed for low docks commonly found in older buildings. Its use eliminates expensive excavations or alterations to the dock. It is simply bolted to the dock surface and can be installed in 30 minutes, according to the manufacturer. The unit is made of steel and is hydraulically operated. The forward edge can be raised or lowered to accommodate truck beds up to 14 inches higher than the dock. The standard model is five feet wide and ten feet long. Standard capacities are 6000 and 12,000 pounds.

Circle 233 on Reader Service Card

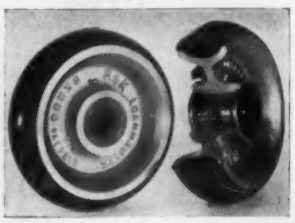
Bulldozer For Crawler Tractors



A bulldozer has been designed by the Henry Manufacturing Company for use with the John Deere 420 crawler tractor. Two models are available: the Henry Angle Tilt Dozer ATD-1, and Henry Straight Dozer SD-1. Both dozers are designed with box steel push beams, outside mounted to insure against springing blade edges. The beam pivot point is below the center line of the tractor for increased traction. The cutting edge of the blade, made of heat-treated high carbon steel, is reversible and replaceable. Specially curved mold board rolls dirt ahead for maximum yardage per horsepower. The blade is 96" long, has a 24" high mold board and 6" high cutting edge.

Circle 234 on Reader Service Card

Aluminum Wheel Has Neoprene Tire



A new aluminum wheel for systems in continuous operation, incorporating a tire of DuPont Neoprene, has been introduced by R & K Industrial Products Co. The R & K Loadmaster wheel resists deterioration caused by animal fats, oils, greases,

acids, brines, etc., as well as abrasion, cutting and shipping. It also resists sunlight and ozone, heat and cold, and permanent deformation under load. Because of its low operating temperatures, it is recommended by the manufacturer for use in power-pulled systems in continuous operation, where heat is an ever-present problem.

Circle 235 on Reader Service Card

Speed Reducer For Conveyor Drives

A speed reducer for conveyor drives has been introduced by Anchor Steel and Conveyor Company. It was designed primarily for applications requiring a vertical output shaft, and embodies features which experience shows to be of prime importance to the user. Such features as quick change of total ratio in the field with stock gears without disturbing balance of drive, dry well construction, and simple rearrangement from output shaft up to output shaft down, or vice versa, decrease maintenance time. The reducers are available from stock in standard sizes and ratios.

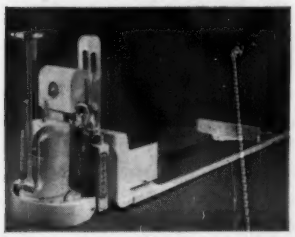
Circle 236 on Reader Service Card

LP-Gas Coupling Is Self-Sealing

Aeroquip Corporation has developed a new LP-Gas self-sealing coupling, Series 5104, for heavy duty service with portable cylinder on lift trucks. The new coupling has UL listing, and may be connected by hand even when the lines are pressurized. The union nut is spring-loaded to prevent loosening by vibration. Seating surfaces fully seal before the valves open, eliminating leakage or possible frostbite during coupling. The coupling is designed to connect with standard P. O. L. connectors. The female P. O. L. threads and seat in the coupling half conform to the latest C. G. A. standards.

Circle 237 on Reader Service Card

Self-Unloading Platform Truck



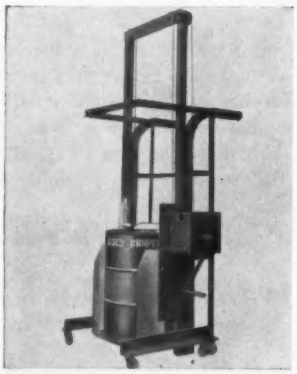
A new walkie type platform truck equipped with a pusher bar for self-unloading has been developed by the Moto-Truc Company. The loading of freight cars and highway trailers with long flat loads is the principle idea behind the design of this

NEW EQUIPMENT SECTION

truck. No pallets are necessary since the load rides on the platform. After positioning the load, the hydraulic pusher is used to push the load off the platform on to the floor. Two special wheel assemblies are used because of heavy loads. Each assembly consists of four wheels, and is designed to compensate for floor irregularities. Dimensions of the standard truck are 135 inches long and 39 inches wide. The standard platform has a lift of 4-¾ inches and is 96 inches long; however, the width and length of the platform can be varied.

Circle 238 on Reader Service Card

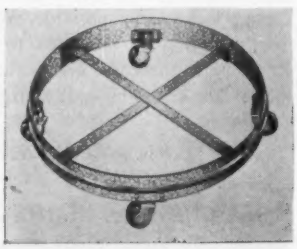
Lifts and Dumps Free Flowing Material



A hand powered damper, designed specifically for intermittent lifting and dumping operations that make possible the use of standard, motor-operated equipment, has been announced by Essex Conveyors, Inc. It is available as a single purpose dumper for bulk handling or as multi-purpose equipment for all types of material in a variety of containers. It has a dumping height ranging up to seven feet and can handle as many as twenty loads per hour. Swivel and stationary casters make it possible to move it about your plant quickly and easily. Stationary models are also available.

Circle 239 on Reader Service Card

Dolly Facilitates Drum Moving



A drum dolly to convert 55 gal. drums to economical mobile containers has been developed by The Witt Cornice Company. It accommodates drums having an O. D. up to 25", and has a capacity of 600 pounds. The dolly is fabricated of ⅛" x 2¼" strip steel and has been designed to hold the drum safely in place at all times. Cross braces are riveted inside the ring to assure rigid support under roughest handling conditions. Convenient placement and easy movement of drums to and from storage areas, process machinery, loading docks, etc., result in time and labor savings, according to the manufacturer.

Circle 240 on Reader Service Card

Circle No. 19 on Reader Service Card

CLASSIFIED ADVERTISING SECTION

USED EQUIPMENT—MEN—JOBS—LINES

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New Hoist Manufacturers Association Outlines Objectives

THE newly formed Hoist Manufacturers Association has outlined some of the objectives which it hopes to accomplish.

The Association replaces the now defunct Electric Hoist Manufacturers Association, which had been in existence since 1917. Its members include manufacturers of all pertinent overhead lifting devices, rather than only electric hoists as in the group it replaces.

Since the association has only recently been formed, its job of organizing is not yet completed. However, one of its plans is a breakdown of membership into product groupings. In this way, each group will be able to conduct market research and other activities that pertain to its own particular type of overhead lifting equipment. Such activities would be in addition to the over-all projects conducted by the association.

President of HMA is Arland R. Walkley, general manager of Manning, Maxwell & Moore, Inc. Walkley was one of the men instrumental in founding the new group. Milton L. Aitken, general sales manager of Robbins & Myers, Inc., was elected vice president. Executive secretary and treasurer is Joe H. Peritz. Directors are: William S. Armington, Carl O. Hedner and William C. Miles. Armington is sales manager of The Euclid Crane & Hoist Company. Hedner is assistant general sales manager, Yale Material Handling Division, The Yale & Towne Manufacturing Company. Miles is vice president of American Engineering Company. Hedner, in addition to being a director, is also head of the committee in charge of publicity and education.

A special engineering committee has been appointed, under the chairmanship of Roger A. Metz, Robbins & Myers, Inc. It is already at work on certain projects. Among these is the problem of speed-lift standardization. According to spokesmen for the group, there are so many combinations of lifts and speeds available for hoist users that purchasers are faced with a virtually impossible job in selecting the best possible combination. To rectify this, the committee plans to recommend certain standards. It is also considering methods of compiling field engineering specifications.

Arland R. Walkley, president of HMA and general manager of Manning, Maxwell & Moore, Inc.

Other officers: Milton L. Aitken, v.p. (top left); Joe H. Peritz, exec. sec. and treas. (top right); directors Carl O. Hedner (bottom left) and William S. Armington (bottom right). Third director, William C. Miles, is not shown.

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